Supplement to the Whole Earth Catalog

The COEVOLUTION Quarterly

$2
1974
Summer

Road Signs

Not "What can you do for me, life?",
But "What can I do for you?".
Prayer's for praising not asking,
Out with slovenly, slipshod and sloppy.
Confusion wets the wings of spirit.
Too much order makes it fly in a vacuum.
Stand back and give life elbow room.
If weather can be temperamental we can too.
Point out what's wrong for help not pleasure.
Go out on limbs but don't stay there.
With children stop, sit down, take the time,
Go to the trouble, listen and play.
If you can't be kind don't bother.
Nothing to excess, not even moderation.
If life knew where it were going it wouldn't go.
Hurry spoils, dither ruins, recklessness destroys,
But over-caution stifles.
Steer your life where it feels right,
Somewhere down the middle.
Fight drowsiness, ever wakeful, alert, interested,
Willing, open, ready, curious, compassionate,
Inventive, creative, playful.
Mind serene.
Heart full of love.
Grateful for light.

COVER ARTIST

David Miller.

The front and back covers and the poem "Road Signs" were made in Mexico by David Miller for this issue of the CoEvolution Quarterly.

The two line illustrations and "Dear Life" on the inside covers are from his extraordinary book, **Windows**, *a feast of color images like these covers. The book costs $6 postpaid from John Muir Publications, P.O. Box 613, Santa Fe, NM 87501. (It is distributed to the book trade through Book People, 2940 Seventh St., Berkeley, CA 94710.)*

Supplement to the Whole Earth Catalog

The CoEvolution Quarterly

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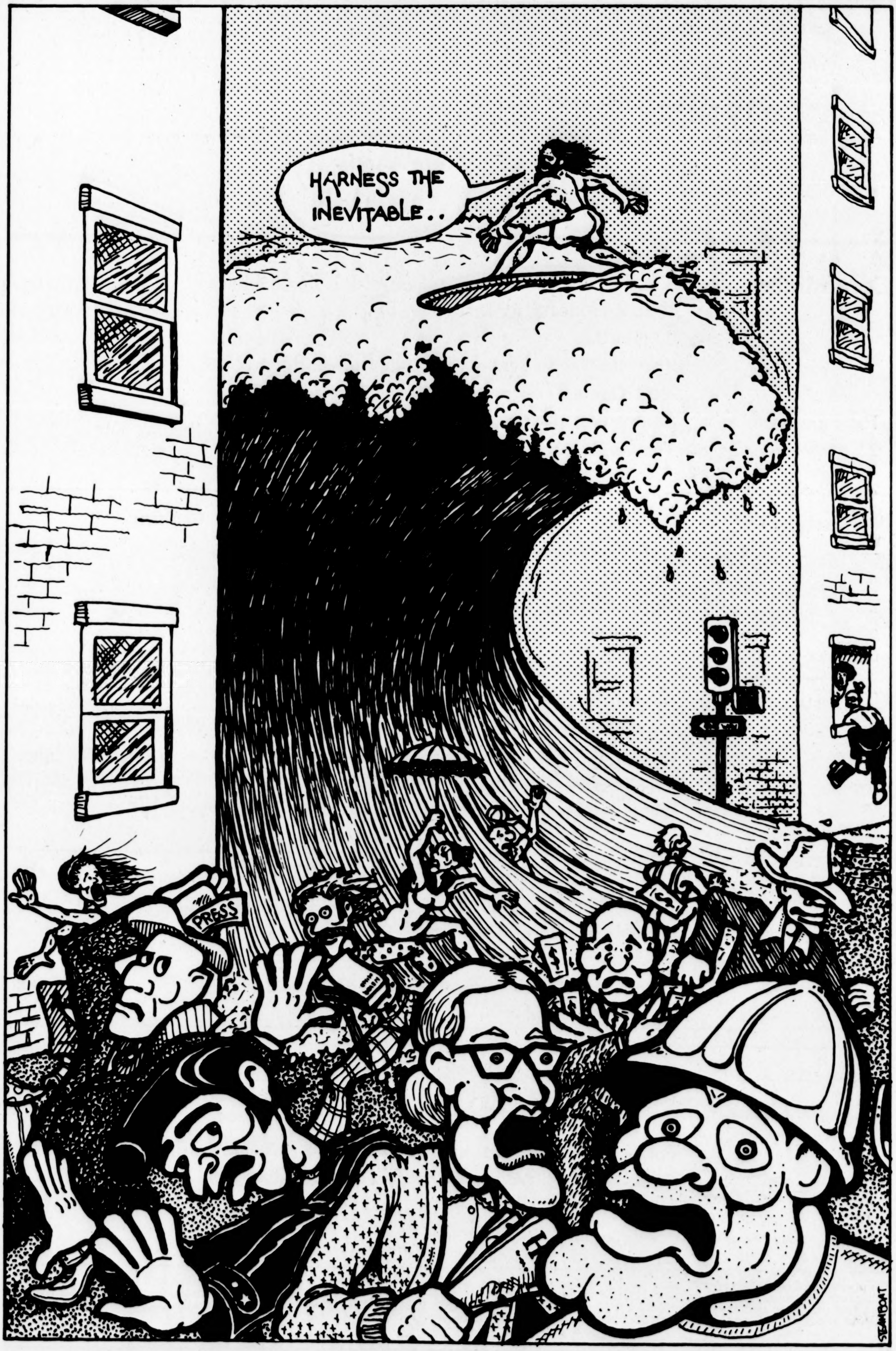

HARNESS THE INEVITABLE..
PRESS
STEAMBOAT

Well-Founded Rumors

The Famines

Of the three (known) looming scarcities——energy, materials, and food—— the most immediate is food. Famine. Those who starve and those who watch.

Schedule: "It all depends on the weather." (Paul Ehrlich).

India's food crisis is coming fast. Its reserves of a few years ago (and claims to self-sufficiency) have evaporated. The spring crop was medium poor due to so-so rains and a critical 25% shortfall of nitrogen fertilizer. The rail strike (which collapsed; the military ran the trains) didn't help. Food riots increased—— they're distribution riots really, mainly by students and middle class. The dying poor just die. A friend recently back from Bombay said that relief food rots on the ships, is thrown in the harbor, or—— bright idea—— thrown on the pier so that starvers crawl from town streets to the piles of food and die there, convenient for collection by corpse details that can't make it into the streets. The smallest public tasks—— a phone call, mailing a letter—— take forever amid the bureaucratic lava. General mood: exhausted depression, torpor.

Now everything hangs on the June-September monsoon rains.

In '72 they failed entirely. Some meteorologists, notably Reid Bryson, suspect that the monsoon cycle may be permanently disrupted by long-term climactic changes affecting India, sub-Sahara Africa, and parts of South America. If the monsoon fails this year several million will starve. Relief food would have to be enroute now, and it's not, so India is desperately trying to buy grain from the U.S. There's reports of a major grain "loan" from the U.S.S.R., but the Russians' crop is looking poor this year. They may wind up bidding against India for the remaining American and Canadian grain. India's new nuclear weaponry, which has repelled Canada and the U.S., might interest Russia with a southern threat to China.

Even shakier is Bangladesh.

Meanwhile entire tribes such as the Tuareg are starving into extinction in the African Sahel (Mauritania, Mali, Niger, Chad, Upper Volta, Senegal)—— perhaps 1.5 million dead. The best place to send money for relief is the effective grassroots Black American organization:

AFRICARE INC.
2204 R St NW
Washington DC 20009

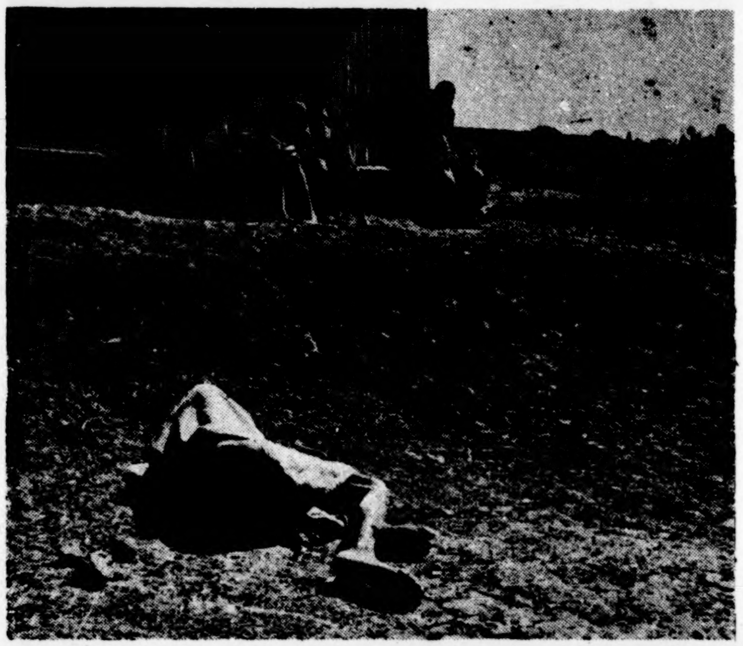
The World Bank estimates that by this Fall some 40 nations will be without resources for foreign exchange—— bankrupt. Most of Africa, most of the Indian subcontinent, parts of South America. The Overseas Development Council predicts another 13 governmental takeovers—— presumably most of them in the direction of police states.

The critical item for everyone this year is nitrogen fertilizer. Because it is manufactured from (dwindling) natural gas it has tended to triple in price or be completely unobtainable. The manufacturing process is a delicate highly-technical operation that can't be conducted successfully in third world countries, including probably the Mideast where the gas is. The U.S. recently loaned a bunch of money to Russia for two new plants. Phosphorus fertilizer is also short of supply and tripled in price—— though supply should catch up.

Economist Barbara Ward says that 10% of America's nitrogen fertilizer is used for our lawns and golf courses. If half of that were voluntarily done without, she says, it could tip the balance this year in the underdeveloped countries. ("About as likely as repealing The Second Law of Thermodynamics," comments Paul Ehrlich.)

In the U.S. meat prices are temporarily low because: the animals are being slaughtered before the feed grain runs out because: the requisite nitrogen fertilizer is expensive and 15% short because: remember the Energy Crisis? You may count on the price of canned foods being up 25% by Fall—— buy foods fresh when they're in season and can your own.

It is still unknown whether the 22-year drought cycle in the American high plains will make its *ninth consecutive appearance and partially re-enact the Dust Bowl years (44 years ago). The drought in Texas that hurt the '74 winter wheat crop may have inaugurated 3-8 sparse years. The rest of U.S. agriculture is having an excellent year, except for the fertilizer shortage.*



*The forthcoming famines are growth famines, revenge of the substrate against populations inflated by temporarily favorable climate and medical and agricultural technology. It's Ireland all over again. There were only a million Irish when Sir Walter Raleigh introduced the potato around 1600 and England fostered an Irish potato republic. By 1845 the Irish population was 8.4 million. Came the Potato Blight, innumerable died, innumerable fled. Population in 1900 was 2 million. (***The Great Hunger***, by Cecil William Smith, has the story.)*

The present world is a much tighter fabric than the 1840's. Does that make it more stable or less? I estimate that this round it's less. International repercussions——economic, political, social, military, and spiritual—— of the inevitable famines can only be guessed at.

Here's my guess (June '74):

1) During the next several years, simultaneous major famines in several monsoon countries.

2) Heroic international effort to feed them, which fails due to ambivalence and shortages at home and appalling chaos in starving nations. More governments topple to militaristic takeovers. Increased isolationism in landed nations; increased instability in dependent nations such as Japan and England. Chinese political influence grows. Arab oil states continue elevation from pawn to queen status.

3) The degree of international military adventures and/or nuclear blackmail is what's hard to figure. All that weaponry exists. Guerrilla warfare everywhere seems certain. Some fish wars at sea. But major wars? Don't know, don't know how to know.

4) Industrialized nations will experience panic and then swifter-than-expected adaptation managing on their fat—— converting human diet from meat to grains, agriculture from energy-intensive to labor-intensive, technology from machine-intensive to information-intensive.

5) But. Alternating complacency and fear may fuel economic instability, possibly collapse. Intensified governmental control clashes with attempts at local autonomy. Patchiness: some areas devastated, others barely affected. Migrations. Spiritual malaise and enthusiasms and conflicts. Throughout: surprising wisdoms, innovations, generosities. A worst and best of times.

6) A different stability, clinging to different truths.

—SB 11 June 74

[For this data (not necessarily the conclusions) I am grateful for conversations with Paul Ehrlich, Margaret Mead, Eric Eckholm, Melissa Savage, William Irwin Thompson, and Jamey Kalvin and for reports in **The Futurist** *(especially April '74),* **U.S. News and World Report, Atlanta Journal and Constitution, Wall Street Journal, Science,** *and* **Washington Watch.** *Various items were sent by Huey Johnson, Bob Allen, Michael Phillips, Sally Nicholson, and I.A. Richards.]*

Random Notes

→1 lb. of beef has eaten 7 lbs. of grain.
1 lb. of pork has eaten 4 lbs. of grain.
1 lb. of chicken has eaten 3 lbs. of grain.

→ Gold bullion may be legally ownable by U.S. Citizens for the first time since 1933 on September 1 1974 if the Senate bill on the matter passes the House. Speculators predict prices of $200/ounce (June 6 it was $159/oz.)

→ One byproduct of famines and migrations may be international epidemics. Even if you live in Indiana it might be worth getting the shots you would get if you were travelling to Asia. Who has specific advice on this? We've heard that cholera shots are worthless (the only effective preventative being sanitation) and that one of the VD's in Vietnam is untreatable.

→ Mike Phillips tells us that Shell and Texaco bailed out Israel and the Netherlands during the Arab oil embargo by continuing to supply petroleum. The multinational corporations are something new, powerful, and growing. Are we witnessing the transition from a national world to a mercantile one, and is that good news? Send along factual research with your evaluation.

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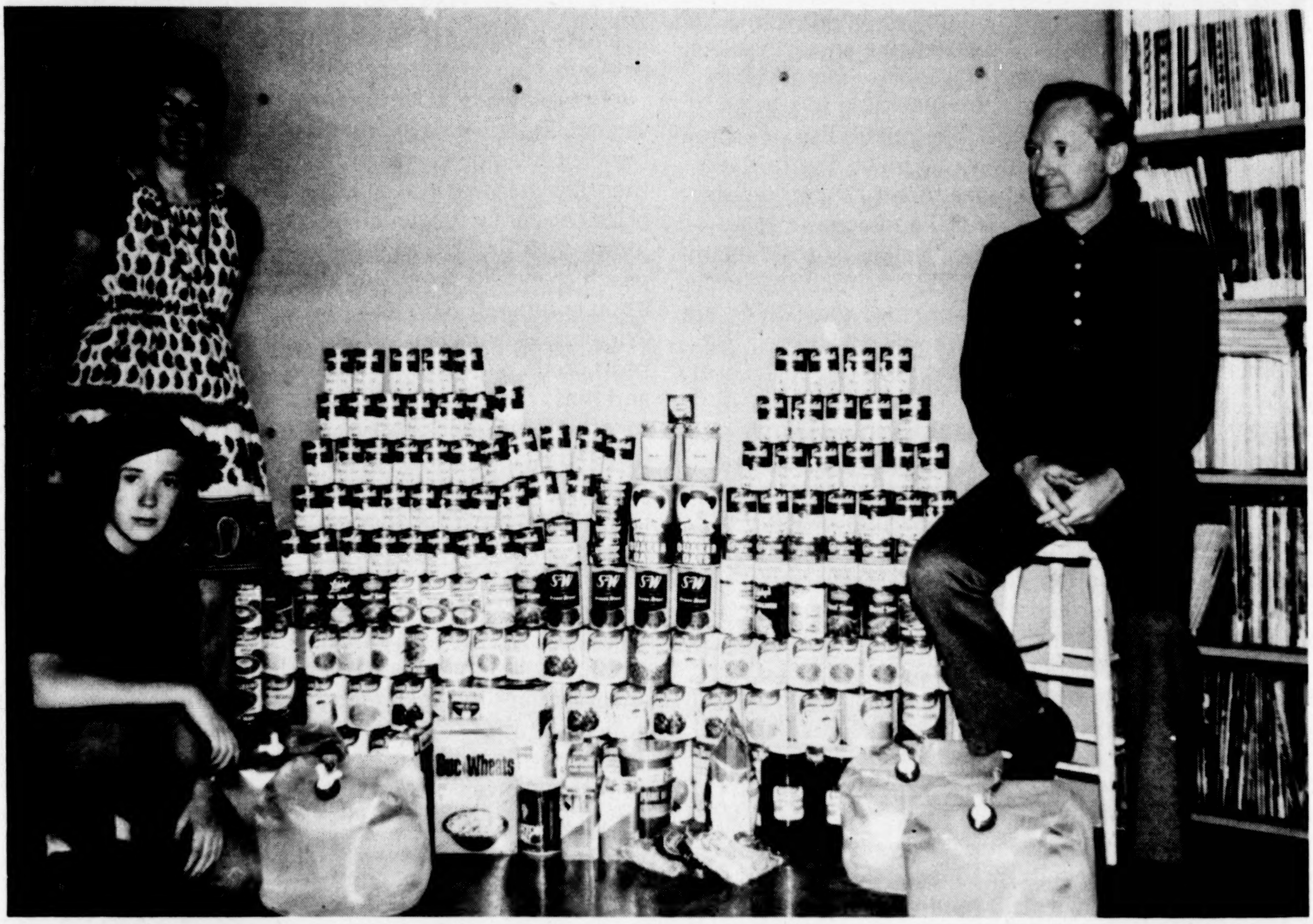


Ken, Doris and Evan Herrick. This 2-week supply of canned food for four, bought at an Oakland market by the Herricks, cost about $75. By buying in caselots with friends, or by substituting more tuna for salmon and choosing least expensive dried fruits, you could lower the total price.

Setting Food By

BY DORIS HERRICK

Doris Herrick leads two lives. Every weekday but Tuesday she's Associate Director of Development at Mills College in Oakland. On Tuesday she crosses the Bay to become Whole Earth's leading researcher. As she strolled in to the office last week through 800,000 anchovies flipping out on the pier, she was heard to remark, "This certainly isn't Mills College."

I would like to see her article expanded into a book. Would readers who have some experience in food storage be interested in helping? Tips, experiences, photos, ideas-worth-trying, other published articles. Help liven Doris's Tuesdays.

—SB

WHY STORE FOOD?

The basic concept of food storage is similar to that of modern insurance or savings accounts. It isn't a new idea. As a strategy for securing the future, it predates the Biblical story of Joseph's advice to the Egyptian Pharoah to store food over seven plentiful years in preparation for seven years of famine. Only in very modern times have families not stocked their pantries and cellars with food supplies to carry them through lean seasons. In recent decades the necessity of keeping a food reserve has become an increasingly distant thought to most Americans. During the 20th century, crop production became more stable and improved technology increased yields to the point of surpluses. Burgeoning supermarket chains brought a cornucopia of foodstuffs within a few minutes' drive of most people. Furthermore, living out your life in one house or one town became more and more uncommon; the trend toward family mobility and toward smaller family units living in smaller quarters made the full pantry tradition— particularly for urban dwellers— a nostalgic memory. What has been happening to challenge this state of neglect?

Many of the common sense reasons for food storage remain the same as they've always been: the potential injury, illness or death of the family's breadwinner, or the possibility of a natural disaster like an earthquake, tornado, hurricane, flood or blizzard——almost every section of the United States is vulnerable to one or another of these phenomena. The possibility of atomic war, while not felt so intensely by most Americans as some years back, holds more threat as the nuclear club admits new members. Social and economic disturbances such as civil disorders, strikes or mass unemployment in a recession or depression, not experienced in a large-scale way by Americans since the 1930's, are prospects that seem less remote today.

Since these potential problems have not sufficiently motivated the vast majority of Americans to set food by, what else is new that might spur such action? It seems to me that there are several new elements on the scene which provide an extra incentive for thoughtful persons to consider storing food. First, food shortages, both international and national, are increasing. As a result of continued population growth, crop failures caused by adverse climate conditions, a world-wide increase in protein consumption, exhaustion of food-producing ecosystems, the energy crisis, and insufficient fertilizer supplies, world food reserves have been drastically reduced. Global grain stocks fell to only about 100 million metric tons in 1973, their lowest level in two decades. The world's population increased by half in that same two decades. As Lester Brown of the Overseas Development Council points out in the just-published report, "Agenda for Action 1974," although 100 million tons may seem a tremendous amount of grain, "it represents a mere 8 percent of annual world grain consumption, or less than one month's needs——an uncomfortably small working reserve and a perilously thin buffer against the vagaries of weather and plant diseases."

On the national scene, processed vegetables and fruits are expected to be in such short supply this summer that grocery stocks will range from reduced variety and sizes to bare shelves. Heavy demand was put on canned goods last year by American shoppers trying to stretch their food budgets. At the same time, farmers were deciding they could make more money planting wheat instead of potatoes and feed corn for pigs instead of sweet corn for people. A spokesman for the National Canners Association told the Wall Street Journal recently that the carryover supply of canned goods by summer's end "would amount to only a half-week's supply of processed fruit and at most 1½ weeks' supply of vegetables." Suppliers have already begun to allocate some items to grocers, based on a percentage of what they bought last year.

A second new inducement to food storage is the unprecedented inflation that is confounding economists and squeezing the budgets of Americans at almost all economic levels. Between January, 1973, and January, 1974, according to the Labor Department, retail food prices went up 19.5%. Cereal and bakery products rose 28.7%; meats, poultry and fish went up 24.3%; dairy products, 22.8%; and fruits and vegetables 14.7%. These increases occurred during a year in which personal disposable income rose only an average of 10.7%. The food crunch contributed to a decline in average spendable weekly earnings in real terms of 1.4% for people outside the agriculture business ("National Food Situation", U.S. Department of Agriculture, February 1974).

The relatively bright picture in canned fruits and vegetables, as we have seen, is rapidly fading. When the processed products from this year's crops reach the supermarkets in August and September, record price rises are expected. The latest prediction is that jumps of from 20% to 40% will occur. (For example, peach growers are offering the current crop at $140 a ton compared with last year's average of $97.) Price increases during 1974 for all retail foods have been predicted variously by the USDA at 8%, 15%, and most recently at 12%. We can only hope this forecast is nowhere near as far off as the USDA was in 1973 (the final figure was triple their prediction).

A final, and really influential impetus toward renewed concern for food storage, has to do with citizen perception of the state of the society. There is a new awareness of the fragility of the economic system, of its complexity and how little understanding there is of how it really works. Old solutions are not working, old models are being discarded, and there are great gaps in the data needed to develop new policies. Out of the great oil debacle, and the government's inability to deal with inflation, has come a massive loss of citizen confidence in the future of the economy. The latest poll of consumer expectations by the University of Michigan's survey center recorded the greatest pessimism in the center's 25-year history. Seventy-six percent of the respondents thought that the government will not be able to reduce inflation in the next couple of years. Furthermore, the psychological shock of the gasoline shortage will continue to reverberate for some time. The carry-over is clear: if it is indeed possible to drive up to a gas station and find no gas, then it is possible someday to drive up to a supermarket and find no food. Sources of supply and the distribution system are vulnerable to large-scale strikes, disruption of the transportation complex, energy cutbacks, failure to realize anticipated crops— the vulnerability has been there some while. The difference is that now we know it.

Embarking on a well thought out plan of food storage should serve to alleviate some of this prophetic doom and gloom. There are positive aspects to setting food by! Naturally, there is a feeling of self-reliance and security that comes from preparedness, as well as the ability to assist family or friends in the event of mutual emergency. There is also the potential for savings— the more food you buy now, the more you avoid inflationary price increases later. You may, in addition, effect savings by quantity buying, either on your own or as part of a purchasing group.

How then to begin? How much food? What kinds of food? Canned, dehydrated, freeze-dried, bulk? At what price? How packaged? Stored where? What about rotating foodstocks? What about water? One question leads to another and the complexities of the whole storage project intimidate and defeat many people before they start. For others, an impulsive beginning may be made that results in wasted food and general frustration. I believe that the best method is to approach the goal in stages that are related to the length of the emergency you decide to prepare for.

The initial aim should be to prepare for a short term situation that might be brought on by natural disasters like earthquake or flood, or by a temporary breakdown of food/water distribution because of strikes or civil disorder. For this sort of contingency, the best storage plan would rely predominately on canned goods. The Defense Civil Preparedness Agency recommends maintaining a 2-week supply of foods which:

- require little or no water for preparation
- can be eaten without heating
- are packaged in one-meal sizes
- have a long shelf life
- require minimum storage space
- can be rotated in your home food supply
- your family likes.

Since there may be no electricity or gas available in your home for cooking or refrigeration, canned goods score because they can be consumed as is. Since water service may be interrupted, canned food is preferable in this short term situation to dehydrated food, because no additional water is required for preparation. Canned products come in a variety of sizes so that you can choose the size nearest one-meal capacity for your family, thus avoiding food wastage. On the negative side, canned goods have a shorter shelf life than dehydrated or freeze-dried foods, and require more space, but the other advantages outweigh this for your first-stage storage. Furthermore, the convenience and familiarity of canned foods in a panic situation is a decided plus.

Here is a list of canned goods for storage, appropriate for feeding a family of four (two adults and two children) for two weeks, suggested by Walter D. Batchelor in his useful booklet, "Gateway to Survival is Storage":

[see box next page]

ETHICS OF FOOD STORAGE

As I got into the writing of this article, certain questions began to nag at me. Wouldn't encouraging people to store food help bring on the very food shortages we're concerned about? By urging "self-reliance" and "independence of the system" through stockpiling food, do we also encourage that streak of "take care of number one first" that runs through the American character? How many people does it take who "opt out" of a commitment to the larger society to create not a "run on the bank" but a "run on the country?" Not to mention right-wing paranoia that subversives and "government control" have undermined the system to the point of incipient collapse. 'If we'd just let people fend for themselves, everything would be fine'––they'd be only too happy to see survival of the fittest take over and weed out the misfits and parasitical poor. Because of course it's the well-off who would be able to afford a "year's supply"––while millions worry about where tomorrow's meal is coming from.

Heavy thoughts. For most of us, the concern about unequal ability to store food is casuistic. We don't worry about the hungry when we sit down to our ample daily dinners. Moral consistency is for places like the Zen Buddhist Center in San Francisco, which has decided not to store food because they are located in a poor inner city area where having a stockpile of food would invite enmity. Or maybe that's simply self-preservation working for the Center.

The main question seems to be whether my storing food is actually going to be detrimental to someone else's welfare. To answer that 'yes' presupposes that there will be widespread, imminent shortages of food in the United States. Agricultural economists do not support this assumption. They say international famine exists, and always has in various places at various times; but the immediate forecast for the U.S. only indicates short-term shortages of particular foodstuffs. In spite of fertilizer and energy crises, American farmers will likely hike their production considerably this year. Short of cataclysmic weather, diminished world food reserves should be built up somewhat––at least temporarily––with American surpluses. The longer view is something else again.

In this situation, I think food storage can be recommended in a positive way. As Dr. Kirby S. Moulton of the University of California Agricultural Extension comments, "enough people with enough money being sufficiently motivated to store enough food to seriously dislocate the national food market today" is not a scenario which he can envision. On the other hand, it is possible that deliberate governmental accumulation of food reserves, as well as individual food storage, could provide a stabilizing factor in the current uncertain market for agricultural crops. Henry Schact, farm reporter for the San Francisco Chronicle, points out: 'Farmers are wary of the 'boom and bust' they have gone through in the past. They are not at all sure that, as some say, we are now on a new plateau of world food demand which will guarantee them a reasonable price for whatever they can produce. They are very much afraid that all-out production can again lead to market collapse."

In the same vein, at the recent Western Governor's Conference on Agriculture Governor Judge of Montana said, "If we are to become the granary for the world, the federal government must share the responsibility and the risk with the ranchers." The conference report recommends "no further increase in development of crop production until there is reasonable assurance that demand will guarantee markets at fair prices." To the extent, then, that individuals buy food in more plentiful times for storage and use it in times of shortage, they help to even out the demand situation for the farmer and undergird a more stable price structure. Furthermore, the ability of citizens to take care of themselves in time of food crisis, whether caused by natural disaster or economic conditions, renders the task of civic or government support agencies that much easier.

The point is, don't wait till the crisis is at hand to rush out in a panic and compete with your fellow citizens for the dwindling stocks. Build up your reserve gradually in times of relatively good supply and cheaper prices. Food prices may temporarily stabilize later on in this year. **U.S. News and World Report** *commented in its May 13, '74 issue, "Prices received by the nation's farmers tumbled 6% from mid-March to mid-April, after a 4% dip the previous month." This drop indicates a possible leveling off in food prices to the consumer toward the end of '74. There is, of course, the chance of misjudging the best time to buy–– watch the food market reports and check out farm reporters' columns for knowledgeable predictions. However, informed opinion says that because of increased energy and transportation costs, as well as the determination of the U.S. to export food for improved balance of payments, there is small likelihood of any real rollback in retail food prices.*

SURVIVAL KIT

Milk	
Powdered, 5 lbs.	
Evaporated, 8 cans	
Canned Fruit	
Pears	4 no. 3 cans
Peaches	4 no. 3 cans
Soups	
Cream soups	24 10½oz cans
Vegetable	24 10½oz cans
Consomme	16 10½oz cans
Bouillon cubes	24
Cereals	
Oatmeal, instant	2 pkgs.
Ready-to-eat	2 pkgs. individuals
Bread	
Bread or biscuits	12 cans
Miscellaneous	
Cookies	4 cans
Sugar, granul'd	2 lbs.
Salt	2 small cans
Hard candy	2 lbs.
Pickles	2 cans
Water	112 12oz. cans
Baked beans	4 cans
Spaghetti	2 cans
Cheese	2 16oz jars
Peanut butter	3 lbs.
Crackers	tin cans, 4 lbs.
Gum	24 pkgs.
Dried fruit	4 lbs.
Instant cocoa	2 pkgs.
Juices	
Tomato	4 no. 3 cans
Orange	6 no. 3 cans
Grapefruit	6 no. 3 cans
Vegetables	
Tomatoes	6 no. 2½ cans
Peas	8 no. 303 cans
Corn	6 no. 303 cans
Green beans	4 no. 2 cans
Canned Meats	
Beef hash	6 16oz cans
Beef stew	6 16oz cans
Salmon	2 16oz cans
Tuna fish	4 7oz cans

The shelf life of canned foods depends greatly on the temperatures at which they are stored, as well as on how long the product had been canned and stocked before you bought it. Some general suggestions have been provided by the Mormon General Church Welfare Committee:

> The short shelf life products are the highly acid and pigmented foods, such as grapefruit and orange juice, black and red cherries, all colored berries, prunes and plums. These canned foods generally have an average storage life of one or two years. Other fruits, such as peaches, pears, apricots and applesauce, should average from two to three years. Vegetables, such as beets, carrots, green beans, spinach, greens, tomatoes and tomato juice, should have an average storage life of from three to four years. Such vegetables and meats as peas, corn, lima beans and roast beef should have an average from four to five years.

On the other hand, the Office of Civil Defense handbook, "In Times of Emergency," carries the following table with much more conservative replacement periods:

	Months
Milk	
Evaporated	6
Nonfat dry or whole dry milk, in metal container	6
Canned meat, poultry, fish:	
Meat, poultry	18
Fish	12
Mixtures of meats, vegetables, cereal products	18
Condensed meat-and-vegetable soups	8
Fruits and vegetables:	
Berries and sour cherries, canned	6
Citrus fruit juices, canned	6
Other fruits and and fruit juices, canned	18
Dried fruit, in metal container	6
Tomatoes, sauerkraut, canned	6
Other vegetables, canned (including dry beans and dry peas)	18
Cereals & baked goods:	Months
Ready-to-eat cereals:	
In metal cont'r	12
In original paper package	1
Uncooked cereal (quick-cooking or instant):	
In metal cont'r	24
In original paper package	12
Hydrogenated (or antioxidant-treated) fats, vegetable oil	12
Sugars, sweets, nuts:	
Sugar...will keep indefinitely	
Hard candy, gum	18
Nuts, canned	12
Instant puddings	12
Miscellaneous:	
Coffee, tea, cocoa (instant)	18
Dry cream product (instant)	12
Bouillon products	12
Flavored beverage powders	24
Salt...will keep indefinitely	
Flavoring extracts, (e.g., pepper)	24
Soda, baking powder	12

An explanation of the difference in these shelf life estimates may be that the maximum keeping times relate to continued edibility, while the minimum times relate to maintaining top taste and nutritive values. Perhaps the best solution would be to rotate your canned goods by replacing items within a two-year period or less, to safeguard retention of vitamins and nutrients. Remember that canned goods bought in the summer, before the new crops are packed and at the market, have already been canned the better part of a year.

For the relatively foot-loose single person, or for couples living in tiny apartments and making repeated moves, a storage plan that heavily relies on canned goods is probably unrealistic. The lower weight, smaller storage space and infrequent need for rotation of dehydrated and freeze dried foods, could make them a preferred choice for your food reserve in these circumstances. Many processors of low-moisture foods put out poly plastic packages in small sizes suitable for one-meal servings. Since their most popular use is for backpacking, these items can be found in most wilderness or camping stores, as well as in some health food outlets. Although the individualized packaging makes them higher-priced, they may still be preferable for their convenience. This is especially true of the complete casseroles, stews, soups, and other entrees which the inveterate non-cook would find a godsend. Dehydrated and freeze dried foods in plastic packages will not store for 10 to 20 years as they will in vacuum sealed cans, but they will certainly remain fresh for several years if kept in a cool, dry area.

If you decide, when you've completed your first-stage, 2-week emergency food supply, that you should move into a longer term storage plan, there are a number of factors that you'll want to weigh. Some of these we've mentioned before: availability of water, your need for mobility and the size of your storage space, variations in the shelf life of products and in their prices. And there are other, less tangible matters to consider: are you psychologically the sort of person who will exert the self-discipline to rotate foodstuffs regularly? How important is convenience to you? Are you willing to put the additional time and energy into food preparation that it takes, say, to grind your own wheat for flour? Or are you the sort who wants to put the most permanent type of food aside, and to the greatest extent possible be worry-free and forget about it?

With these questions in mind, there are two main approaches that can be taken to long term food storing. Neither of these includes storing canned food to any extent, because the advantages that canned goods have for a short term crisis do not hold for a long term program. For example, the question of water supply, while of key importance in a temporary emergency, becomes irrelevant for a prolonged period. The point is summed up neatly by Bob Zabriskie in his book, "Family Storage Plan":

> If water service were not restored within a few days, would it really make much difference what kind of food one had stored? No one should forego the space, cost and rotation advantages of dried and dehydrated goods because of water fears... most people who have thought the matter through carefully feel that if there were not enough water with which to cook, there likely would not be enough to drink either.

Also, in the case of an extended food shortage, the elements of crisis and panic would no longer be primary— cooking methods and meal organization would be regularized so that less familiar food preparations could be tried.

In these circumstances, the superiority of low-moisture foods is apparent. A food product that weighs from 36 to 45 ounces in dehydrated form will weigh approximately 24 pounds as canned food. A year's supply of canned goods and grain for four persons would fill a complete storeroom (the volume of only a 2-week supply is about 10 cubic feet), while the same supply of dehydrated food can easily be loaded into a station wagon——so much for easy mobility. In considering storage life, most dehydrated products in vacuum sealed cans will keep well beyond ten years (dried milk and eggs are more perishable). This compares with our recommended rotation period of two years or less for canned goods. As to price, while one might question the estimate (by Pioneer Foods in their brochure, "Beat the High Cost of Living") that dehydrated foods cost about 35% less than canned goods, their cost is definitely much lower, and they have over double the yield. Below is a comparison shown by Barbara G. Salsbury in her book, **Just Add Water**.

One approach to a long term storage plan is to concentrate on stocking what Esther Dickey in her book, **Passport to Survival**, calls "the four basic survival

Dehydrated Goods Compared with Canned Foods

Canned Item	Can Size	Weight	Amount of Liquid	Amount of Product
Fruit Cocktail	No. 303	17 oz.	1 cup	1 cup
Green Beans	No. 303	16 oz.	1 cup	2 cups
Peach halves	No. 303	17 oz.	1 cup	1 cup
Peach slices	No. 303	17 oz.	1 cup	1-1/4 cup
Peas	No. 303	17 oz.	1-3/4 cup	3/4 cup

The above items are the wet pack cans you buy from the market shelves. In most cases half or more of the weight of the can is water.

Dehydrated Item	Dry Amount	Weight	Water Added	Yield
Fruit Galaxy	1 cup	4 oz.	1-1/2 cups	2-1/2 cups
Green Beans	1 cup	2 oz.	1-1/4 cups	2-1/2 cups
Peaches, sliced	1 cup	4 oz.	1-1/4 cups	2 cups
Peas	1 cup	4 oz.	2 cups	2-1/3 cups

Two cups of water were added to each of the dehydrated products above. After 24 hours the excess liquid was poured off and measured. This was done in order to arrive at the amount of yield.

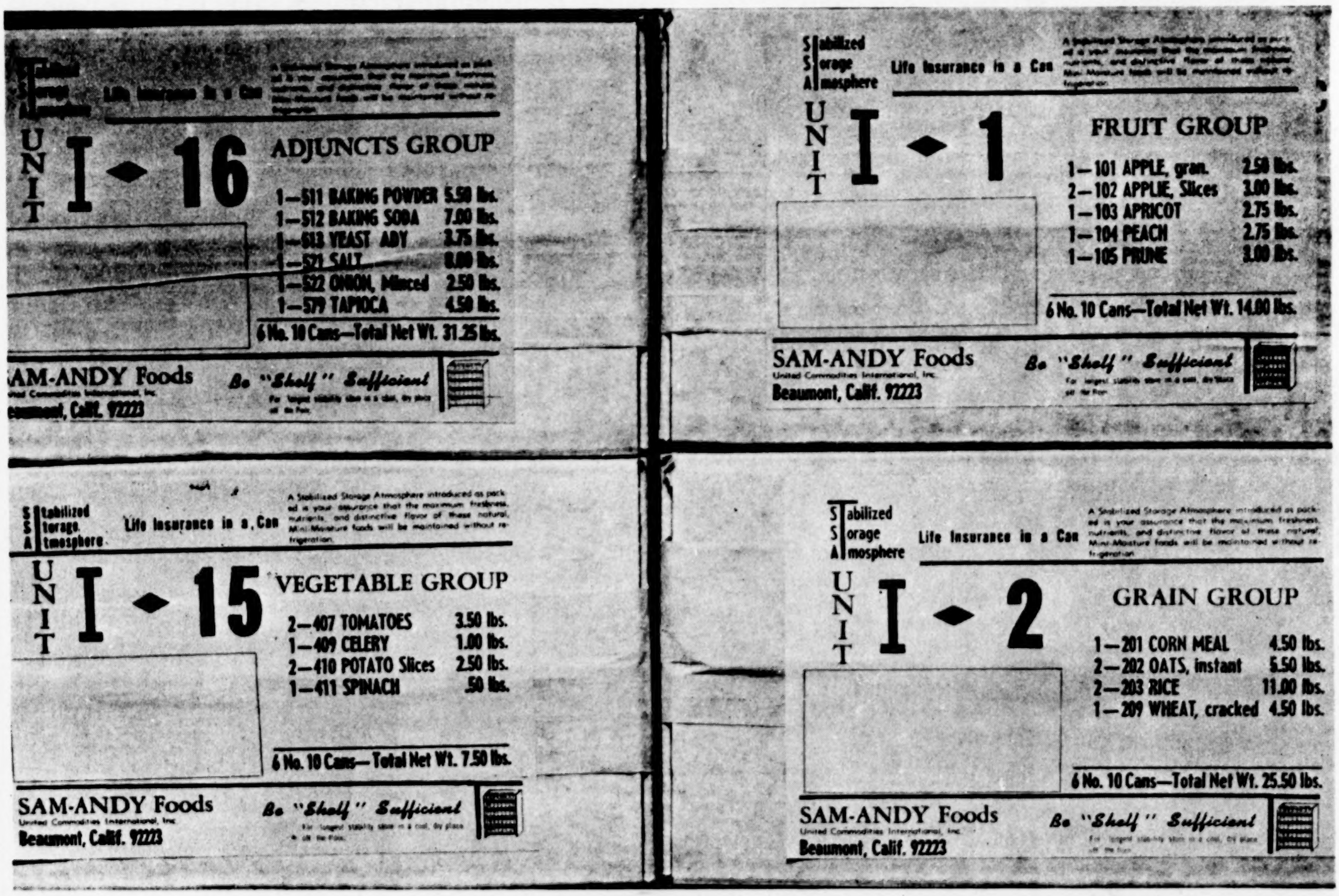
foods": wheat, honey, milk and salt. The great advantage of these foods, in addition to their excellent nutritional value, is their durability for storing. Dark, hard, winter or spring wheat that has less than 10% moisture and has been thoroughly cleaned, will keep indefinitely when stored in well-sealed metal containers under proper conditions. (See section on "Good Food Storage Practice".) Some storage guides suggest aerating the wheat twice a year. Others recommend various methods of fumigating the wheat in advance of storing. However, take care using such treatments as methyl bromide gas, dry ice, or carbon tetrachloride; they involve definite dangers when carried out by unskilled amateurs. If you plan to use this type of pre-storage treatment, you should contact your local Department of Agriculture office or County Agricultural Extension Service about up-to-date procedures and advice on local conditions such as humidity. However, it is the view of Esther Dickey and other storage experts that it is not necessary to pre-treat wheat if it is stored under the proper conditions mentioned above.

The other "basic foods" also store well— honey (the pure crystalline kind with no water added) will keep indefinitely. If it should harden, just heat the can or jar (loosen lid first) in boiling water until the honey liquifies. There is greater debate about the keeping quality of non-fat powdered milk. Opinions range from 2 years, to 3— 5 years, to a high of 10 years (all under optimum conditions). Complete agreement exists, though, about the importance of keeping milk at a cool temperature; non-fat milk stored at 40^0 will keep twice as long as that stored at 70^0. It is also essential that powdered milk be kept very dry, so for storage it's worth buying the "extra" grade with a moisture content of less than 4%. You should store packages of dried milk in airtight cans to further protect it from deterioration; if milk is bought in bulk, dry out your storage containers in the oven and cool them before filling with milk. You can purchase non-fat powdered milk that has been vacuum-packed, which will store much longer than regularly packaged milk.

Of course, this "survival food" approach to storage provides a strictly emergency-type diet. Over a period of a year, an adult woman would consume approximately:

300	pounds of wheat
75—100	pounds of non-fat powdered milk
60	pounds of honey or 100 pounds of sugar
5	pounds of salt

In spite of the most ingenious recipe innovations that creatively combine these basic foods (including derivatives like wheat grass and sprouts), such a restricted regime would quickly become monotonous. Even to expand this reserve, as some storage planners suggest, with supplementary foods like peanut butter, dried peas and beans, or rice, would still yield a bare-existence diet. It is also a good question as to how well one would physically adjust to consuming such a narrow range of foods in quantities sufficient to sustain life over a prolonged period. If you are interested in experimenting with menus based on the four "emergency" foods, there


Stabilized Storage Atmosphere
Life Insurance in a Can
UNIT I ◆ 16
ADJUNCTS GROUP
1—511 BAKING POWDER 5.50 lbs.
1—512 BAKING SODA 7.00 lbs.
1—613 YEAST ADY 3.75 lbs.
1—521 SALT 8.00 lbs.
1—522 ONION, Minced 2.50 lbs.
1—579 TAPIOCA 4.50 lbs.
6 No. 10 Cans—Total Net Wt. 31.25 lbs.
SAM-ANDY Foods
Beaumont, Calif. 92223
Be "Shelf" Sufficient
Stabilized Storage Atmosphere
Life Insurance in a Can
UNIT I ◆ 1
FRUIT GROUP
1—101 APPLE, gran. 2.50 lbs.
2—102 APPLIE, Slices 3.00 lbs.
1—103 APRICOT 2.75 lbs.
1—104 PEACH 2.75 lbs.
1—105 PRUNE 3.00 lbs.
6 No. 10 Cans—Total Net Wt. 14.00 lbs.
SAM-ANDY Foods
United Commodities International, Inc.
Beaumont, Calif. 92223
Be "Shelf" Sufficient
Stabilized Storage Atmosphere
Life Insurance in a Can
A Stabilized Storage Atmosphere introduced as packed is your assurance that the maximum freshness, nutrients, and distinctive flavor of these natural, Mini-Moisture foods will be maintained without refrigeration.
UNIT I ◆ 15
VEGETABLE GROUP
2—407 TOMATOES 3.50 lbs.
1—409 CELERY 1.00 lbs.
2—410 POTATO Slices 2.50 lbs.
1—411 SPINACH .50 lbs.
6 No. 10 Cans—Total Net Wt. 7.50 lbs.
SAM-ANDY Foods
United Commodities International, Inc.
Beaumont, Calif. 92223
Be "Shelf" Sufficient
Stabilized Storage Atmosphere
Life Insurance in a Can
A Stabilized Storage Atmosphere introduced as packed is your assurance that the maximum freshness, nutrients, and distinctive flavor of these natural, Mini-Moisture foods will be maintained without refrigeration.
UNIT I ◆ 2
GRAIN GROUP
1—201 CORN MEAL 4.50 lbs.
2—202 OATS, instant 5.50 lbs.
2—203 RICE 11.00 lbs.
1—209 WHEAT, cracked 4.50 lbs.
6 No. 10 Cans—Total Net Wt. 25.50 lbs.
SAM-ANDY Foods
United Commodities International, Inc.
Beaumont, Calif. 92223
Be "Shelf" Sufficient

are several good cookbooks available, with many imaginative recipes:

Wheat for Man - Rosenvall, Miller & Flack; Bookcraft Publishers - $1.50
Make a Treat with Wheat - Hazel Richards; Hawkes Publishing - $2.25
Passport to Survival - Esther Dickey; Bookcraft Publishers - $3.95

A second approach to long term food storage aims to combine the durability of the basic survival foods with a more varied, more familiar diet. This is possible today because of a remarkable recent expansion in the availability and variety of dehydrated and freeze dried foods prepared for home storage. Low-moisture food products are nothing new. We buy them under the Madison Avenue guise of "convenience foods," as cake mixes, instant potatoes, soup and gravy mixes, gelatins and cooked cereals. But while these showily packaged items will keep well for only 3 to 6 months, dehydrated foods that are vacuum-packed for storage have a shelf life of from 10 to 20 years.

Dehydrated foods are not simply "dried foods" as we have traditionally known them. Such dried fruits as raisins, apricots and prunes that we buy in the grocery have only had their moisture evaporated down to a 25% level, where they are still vulnerable to deterioration and spoilage from bacterial and chemical processes. In contrast, the moisture content of dehydrated and freeze dried foods is taken down to as low as 2% - 4%. According to the Perma-Pak publication, "Culinary Capers .. or How to Use What You Store and Store What You Use," the product is then packed in a vacuum-sealed can from which the oxygen is removed, and an inert atmosphere is injected to retard calorie loss and color and flavor changes.

WATER

An emergency supply of water is crucial to your storage plan. While people have survived without food for extended periods, you probably could not go without water for much beyond a week. The minimum supply of water recommended for storage by Civil Defense authorities is 2 quarts per person daily; a gallon would be preferable, especially if part of your food reserve is dehydrated and needs liquid for reconstitution. For a 2-week period that would mean stocking 14 gallons of water per person.

Plastic bleach bottles are excellent for storing water; rinse carefully, fill with tap water, and add two drops of any common bleach (containing 5.25 percent sodium hypochlorite) per quart. Stir the mixture and let it stand for 30 minutes, by which time the taste or smell of chlorine should be apparent. If not, add a second dose to the water and let it stand for another 15 minutes. When you're able to detect chlorine in the water, seal the bottle tightly and store in a cool, dark place. Water treated in this way will keep well for long periods of time; to get rid of a flat taste, aerate by pouring water from one container to another several times. Commercially canned water is also available, which reportedly remains sterile for 25 years. To be prepared for a long term emergency, you might want to look into portable water purifiers, which retail at about $40.

In an emergency, there are usually other sources of drinkable water in the home in addition to your stored water. The storage tank of the hot-water heater may contain from 20 to 60 gallons. (If you periodically open the drain valve at the bottom of the tank until the water runs clear, you can avoid a buildup of rust and sediment in this potential supply.) The water in the flush tanks (not the bowls) of home toilets is drinkable. If your water service is interrupted, or if you are instructed to turn off the main water valve, you should turn off the gasline that supplies your hot-water heater also. Otherwise, continued heat will muddy the remaining contents, or possibly cause an explosion. Shutting off the main water valve also seals clean water in the pipes of your plumbing system. The water can be obtained by opening a faucet in the uppermost part of the house to let air into the system, and then drawing water off as needed from a faucet in the lowest part of the house.

Tip: In planning your storage supply of liquids, remember that any canned juices in your reserve will be best if processed with very little salt or sugar, so as to maximize their thirst-quenching potential. Canned meats with low-salt content should also be chosen, such as canned roast beef. Dietetic tuna fish and meats contain very little salt.

Unquestionably, low-moisture foods have many advantages for extended storage: small storing space, light weight, less need for rotation, convenience in preparation, and low cost are compelling recommendations. According to a representative of the Beehive Store (distributors of Deseret Supply Co. products), dehydrated and freeze dried foods have an average 74% retention of food nutrients compared with an average of 26% for canned goods, varying according to the food product. Deseret Supply claims a shelf life of 10 years for its egg and milk products; other items are quoted at a 25 year durability span. Pioneer Foods of Des Moines, Iowa, reports a shelf life of 10 to 20 years for its vacuum packed line; somewhat more conservative is Perma-Pak, who state that their products stay in good condition over "five, eight, ten years or more of storage." Probably the most persuasive statement is made by Earl Schmidt, Vice President of Bernard Food Industries in San Jose, California. He points out that although "some firms publicize that their products will last ten or twenty years or whatever, no one today can really predict what the nutritive loss in stored food items will be... There hasn't yet been a long enough period of experience with storing of foods processed and packed by modern methods, to make accurate shelf life predictions."

Bernard Foods, by the way, appears to be the only food processor to be marketing its own line of dehydrated and freeze dried products for food storage. Other storage brand names and distributors are selling foodstuffs procured from special firms in the dehydrating business. Bernard dries its own fruits and most of its vegetables, using no preservatives. By controlling the product from the field through to the customer, they can deal with any pesticides or preservatives remaining from the growing process. Involved for 25 years in the institutional low-moisture food market, Bernard has recently felt increasing demands from home storage customers. In response, the firm has inaugurated a new "Stor-a-Pak" line, featuring a series of complete entrees with beef and chicken. (Stroganoff, Tetrazzini, Pemmican Stew, Chow Mein and Chili Mac are a few of the casserole-style main courses, packed in No. 10 size containers that provide 100 or more servings, or in smaller poly plastic packages with either 50 or 16 servings.) The cost of a 3-ounce serving of an entree in this series is 10¢.

In response to increased interest in low-moisture foods, several recipe books have been recently published giving guidance to cooks in the correct use of these products. Their unanimous admonition is: experiment with your dehydrated and freeze dried foods now, rather than waiting till an emergency situation is at hand to try them. By working some of these recipes into your normal menu routine, you will gain confidence in the versatility of low-moisture foods and in your ability to make tasty meals with them. (You should try your experiments with the smaller packages, rather than opening up a No. 10 can and having to use it all or let it deteriorate with time.) Here are three books with many excellent, easy-to-prepare recipes that should make cooking dehydrated and freeze dried foods less intimidating:

Beth "Chicken Little" Fairbanks and the Perma-Pak YEAR'S SUPPLY of food.

Just Add Water, by Barbara G. Salsbury ($1.95 - 65 pp.); 1972 - Horizon Publishers, 191 North 650 East, Bountiful, Utah 84010.

Helpful introductory material on the advantages of dehydrated foods, how to plan a storage program around them, and how to use them most effectively. The recipes, which Mrs. Salsbury personally developed, range over every part of the daily menu.

Mix N' Moisten Meals, by Ruth Stephensen ($2.50 - 92 pp.); 1974 - Bookcraft Publishers, 1848 West 2300 South, Salt Lake City, Utah.

Just published this spring, a collection of over 200 recipes that includes such favorites as pizza, chicken pot pie, donuts, sour cream cabbage, and carrot cake — all made from dehydrated foods.

Culinary Capers, by Perma-Pak, Inc. ($2.95 - 155 pp.); 1972 - Bookcraft Publishers, 1848 West 2300 South, Salt Lake City, Utah.

An introduction to low-moisture food cooking, with good information on substitutions and tables of equivalent amounts, sample yields, and comparisons with fresh foods. The greater part of the book is devoted to recipes using dehydrated foods, with many menu suggestions and helpful hints to make you an accomplished and versatile cook of "lo-mo" meals.

There are a number of firms handling food products for home storage that market package deals on a "year's supply" of dehydrated and freeze dried foods. Charles Hartman, sales manager for Pioneer Foods, reports that he has seen prices recently varying from $274 to $523 for the basic unit which is intended to feed one person for one year. Here are some prices for a year's supply, quoted by several of the more popular storage food companies:

Perma-Pak, Inc. 40 East 2430 South Salt Lake City, UT 84115	$378.55, Basic Unit $447.40, Basic Unit + 2 Supplements (FOB Salt Lake City)
Deseret Supply Co. 410-418 N. Fifth St. Redlands, Calif. 92373	$400.00, Honeybee Primary D Unit, 12 month Supply) $479.00, Honeybee Primary B Unit, 15 month supply)
Pioneer Foods 215 East Third St. Des Moines, Iowa 50309	$425.00, FOB Des Moines shipping charge $20 to either coast
Lanello Reserves 2112 Santa Barbara Santa Barbara, Calif. 93105	$375.00, (400 lbs. FOB Santa Barbara)
Sam-Andy Dehydrated Foods 525 South Rancho Colton, California 94324	$335. (182 lbs. FOB Colton)
FSP Foods 6200 Hollis Street Emeryville, Calif. 94608	Units at $360 and and $425 (400 lbs.) FOB Emeryville
Bernard Food Industries, Inc. Box 487 San Jose, Calif. 95103	Does not package a "year's supply" per se; customer may choose supply from product lists; shipments of over $200 are pre-paid

You should be aware of several factors in choosing a supplier for your storage needs. Obtain several distributors' lists and make careful comparisons of what items are offered as part of a year's supply——products making up the unit may vary considerably from one company to another. For instance, check how much wheat, if any, is part of the assortment, since wheat is cheaper per pound than other products. Note whether the distributor stipulates that he can substitute one product for another, without notice. You may find, as one buyer did, that you receive a No. 10 can of green peppers instead of the expected dried apples. Ask about delivery times——some firms have low inventories and are running very late with shipments. By contacting the central offices above, locate a sales outlet near you, to try out products directly and save on shipping. Deseret Supply Company and Sam-Andy have local distribution outlets nationally, with coverage most heavy in the Western states.

The idea of keeping a "year's supply" of necessities is one that the Mormon Church has preached and practiced since Brigham Young advised, "Brethren... lay up grain and flour, and save it against a day of scarcity. Sisters... aid your husbands in storing it up against a day of want, and always have a year's or two, provision on hand." This admonition was particularly strengthened during the drought and depression of the 1930's. To counter the "dust bowl" conditions and joblessness that brought poverty to farm and city dwellers alike, Mormon bishop Harold B. Lee inaugurated the "Church Security Program." Believing in individual self-reliance and communal care of the needy within their own church, the Latter-Day Saints have set up around 130 "Bishop's Storehouses" to stock and distribute foods that are produced on Mormon farms and in Mormon mills.

Church families are constantly reminded of their duty to have a "year's supply" on hand. In a recent interview in the Los Angeles Times, John Russon, a representative of the Council of Twelve in the Bakersfield/Pomona Region, estimated that about one-fourth of Mormon families in his area have set aside food for a year in their garages, basements and closets. Another estimate, by Dr. R. David Lauper, a group leader in the Elders Quorum in a New York ward, is that as many as 30% to 40% of Mormons nationwide are stockpiling food. Dr. Lauper remarks, "People used to laugh at us for storing food .. but now that we've gotten so far away from being self-sufficient, the threat of food shortages is real."

Most of the books about food storage plans, procedures and practical advice are written by Mormons, primarily for Mormons. With that in mind, here are brief evaluations of some of the more useful of these publications, which afforded much good information for this article:

Gateway to Survival is Storage, by Walter D. Batchelor (75¢ - 35 pp.)

Least expensive of the storage sourcebooks, with the most information for your money; first printed in 1937, now in its 12th, newly revised edition (Oct. '73). Often quoted in other books, Batchelor includes considerably less religio-political commentary than other storage writers. Brief, concise instructions for planning and carrying out a food storage program; no recipes.

Family Storage Plan, by Bob Zabriskie ($1.50 - 55 pp. plus 11 rotation-form pages)

Good information both on the "four basic foods" and canned goods storage. Provides a variety of excellent procedures and tips, but also includes quite a few pages of homilies and quotations from church authorities; relatively little social/political discussion. Published in 1966.

Passport to Survival, by Esther Dickey ($3.95 - 170 pp.)

Food storage program based on the four "survival foods," with extensive section of innovative recipes designed to get the most variety out of this restricted diet. The book's introduction tends toward prophetic melodrama but the text gives cheerful, clear instructions about how to prepare for emergency situations. Published in 1969, **Passport to Survival** is in its 15th printing (revised 1973); shortly to come from the publisher is a second volume which will be "one-third gardening, one-third storing and using, and one-third emergency preparedness and energy use."

How to "Be Prepared", by Roland Page ($2.95 - 69 pp. plus a 13-page directory of manufacturers and distributors of preparedness products).

Compiles a number of helpful procedures and charts (use of food inventory lists, nutritional comparisons, tables of drying times and yields for fruits and vegetables), designs (homemade water distilling system, canned goods rotation bin, do-it-yourself smokehouse), and suggestions (to repel weevils, wash your food storage containers with detergent rather than soap). Page takes a very hardline view on "law & order," subversives, wives who are deliberately childless, and the unreligious. Although he opines that his writing "will have no meaning for agnostics or 'intellectuals' whose mental 'pipeline' is only concerned with worldly esteem, possessions, and uninspired do-goodism," the book is a useful resource.

(All of the above books are available from Bookcraft Publishers, 1848 West 2300 South, Salt Lake City, Utah.)

A new book which so far I have been unable to obtain, to check out, is **How to Beat the Food Shortage** by Larry Jaussi.

The Storage Bin, 4300 South 4850 West, Granger, Utah, puts out a monthly magazine "dedicated to help people store food and prepare for the future." For $3.00 per year or 30¢ a copy, you can get good ideas on basic food storage, gardening, sprouting, herbs and spices, and edible wild plants.

Good Food Storage Practice

THE PROPER ROOM

The ideal storage space is dark and cool, is dry in all seasons of the year, is free from steam, hot water/hot air pipes, and odors (particularly soap, onions and petroleum products), and is closed off from the rest of the house. A basement is good––if damp, it helps to paint the outside of food cans with an oil-base paint. If there's no basement available, use a closet or garage on the north side of the house. In a small apartment with few storage options, you should place foodstuffs against an outside wall during winter months when rooms are heated; in the summer the coolest place will likely be an inside wall or closet. Never store your food directly on a cement floor. Use a base of wood slats under your cans to prevent sweating and rusting.

CRITICAL TEMPERATURES

There are three temperatures you should keep in mind when storing food. One is freezing––many foods will deteriorate if allowed to become frozen. A second is 48° F, the temperature at which most insects become active. The third is the temperature at which fat melts––about 95° F. A general rule suggested by Bob Zabriskie is to maintain the lowest temperature short of freezing for your storage goods. The optimum would be between 40° and 60°––anything over 70° begins to be detrimental.

ROTATION

In planning your emergency food supply, pick canned goods that you really like and use regularly; that way you'll be able to rotate them easily within your usual menu schedule. Mark the date of purchase on your supplies, and keep a running list of your inventory. Several of the resource books mentioned in this article have forms, ranging from simple to elaborate, to help you keep track of your rotating stock. Roland Page in his book, **How to Be Prepared**, and Walter Batchelor in **Gateway to Survival is Storage**, show designs for building your own rotation bins for canned goods.

TIPS

Commercial canned goods should be turned upside down every six months or less (canned milk every 30 days) to prevent solids from settling out.

Be sure that glass containers of food are stored in the dark, since light can cause vitamin loss.

Cans that are bulging or leaking should be discarded; rusted cans are all right unless the rust has caused a perforation in the can.

When reconstituting powdered milk that has been stored for a time, you should use less of it per volume of water than normally. The milk settles and becomes more compact, so that the usual measurement of powder tends to make too strong a flavor.

Remember: vitamins in regular packaging do not keep very well––one year is usually the maximum for reliable potency. Vacuum packed vitamins, on the other hand, have a shelf life of five years, according to a representative of Deseret Supply Company.

Top candidate for storage: vacuum packed seeds. In a long term emergency you would certainly want to plant a garden, and these seeds have a shelf life of 10 years. The "Survival Garden" (Clyde Robin, P.O. Box 2091, Castro Valley, CA 94546) packs ten lasting seeds for $6.00.

Turning on to the subject of food storage may be just the start of your becoming more self-reliant about food... There are

More Ways to Beat Food Prices and Shortages

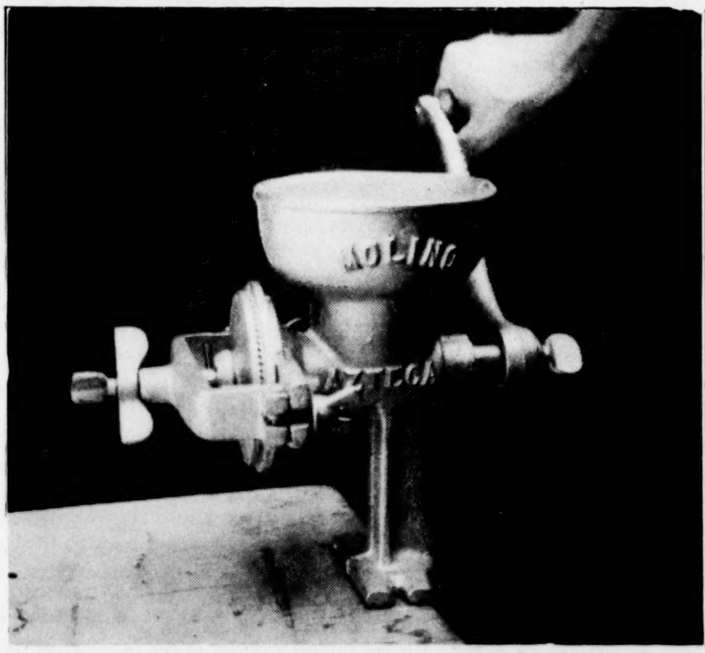
FOOD CONSPIRACIES––One effective way to begin the transition from total dependence on the supermarket system is to organize a food buying group. By allowing you to bypass as many middlemen (grocery store, warehouse, packager) as you desire, food conspiracies can provide large savings, better quality food products, and a direct "in" to the farmer's marketplace. You can save yourself a lot of mistakes, and profit from the first-hand experience of people who have organized successfully, by getting the **Food Conspiracy Cookbook and Members Manual** ($2.50 from Sproing Books, P.O. Box 4191, Boulder, Colorado 80302). This is a candid, reliable rundown on the mechanics, obstacles and satisfactions of operating a buying group. As the writers point out, "Not only will you save money, you will also learn how our structured society works, and you will discover how much power a few people with pooled money and energies can have." The recipes look good, too!

GROWING YOUR OWN VEGETABLES––Backyards and vacant lots are being turned into garden plots all over America this year. (Even apartment dwellers can grow vegetables like radishes, onions and cherry tomatoes in 10-inch window pots.) Your local Department of Agriculture office can give you information and free pamphlets like "Home Vegetable Gardening," "Mulches for your Garden," and "Soil and Water Management for Home Gardeners." More good info is in **The Basic Book of Organically Grown Foods** (Signet, $1.50) and **Grow Your Own** (Jean Darlington, Bookworks, $1.75). If this is your first venture into growing vegetables, you might want to work in a co-op garden to learn the basics; there are quite a few neighborhood gardens being started in urban areas these days. The best food values for your space: carrots, onions, beets, broccoli, cabbage, spinach, snap beans, cauliflower and tomatoes.

CANNING YOUR OWN FOOD––There are drawbacks as well as satisfactions in home canning: it takes extreme care, especially vegetables. Also, Sylvia Porter passed the word in April that canning equipment, quart jars in particular, will be in short supply by late spring. Will canning really save you money? Only if you already have a reasonably large vegetable garden going, says Porter. "If you have only a 6-by-10 foot garden, or you're thinking of preserving the fresh produce you buy at the market, reconsider. It will be cheaper to buy the canned goods, even in this murderous inflation era."

HOME FOOD DEHYDRATING––Dehydrating your own food can be a practical approach to food storage–– and to beating high prices. An excellent guide is **Mountain Valley Book of Home Food Dehydrating** (Jay and Shirley Bills, Cache Manufacturing and Construction, Inc., P.O. Box 692, Logan, Utah 84321, $2.95). There is also a good section on this subject, as well as on meat smoking and on salting and brining, in Esther Dickey's **Passport to Survival** (Bookcraft, $3.95). Beef jerky, dried fruits and vegetables, and fruit leathers are only a few of the food items you can preserve by dehydrating... Commercial food processors who were questioned did not know of any firm with equipment available to the public for freeze drying your own food crops. One company official remarked, however, that it sounded like a very good idea.

YOUR OWN MEAT SUPPLY––Would you believe that rabbits can be easily grown for meat production in urban areas? "Raising Rabbits in Berkeley" (a 3-part series in Berkeley's Ecology Center newsletter for March, April and May '74) tells you how. "When properly managed, rabbits can provide the urban ecologist with a waste management tool for the conversion of kitchen and garden wastes into low cost animal protein, a source of nitrogen rich manure and urine for the compost, pelts appropriate for use as clothing and blankets... For the urban gardener, whether a vegetarian or omnivore, rabbits will complete one's urban garden eco-system." Details about cost, stock, feeding, breeding and meat production are available from: The Ecology Center, 2179 Allston Way, Berkeley, California 94704, in a reprint of the newsletter series (also contains a reprint on urban chicken raising.)



If you plan to store wheat berries for your long term program, you will naturally need a flour mill. The most popular hand-operated stone mill is the Corona, available from the R. & R. Mill Co., Inc. (45 West First Street North, Smithfield UT 84335) or the Whole Earth Truck Store (558 Santa Cruz Ave., Menlo Park CA 94025) for $37.50. If interested, you should move on this soon, as it is already reportedly backordered. You'll probably get quicker action through a retail outlet. If you already have a steel-bladed Corona, there is a conversion kit available from the above addresses. The advantage lies in the quick conversion from steel to stone and back again; the disadvantage is that the stones are usually a hard fit, and you may have to bore out holes on your steel-bladed mill. Among the electrically operated, more expensive mills, Magic Mill is highly recommended. It sells for $239.50, grinds 50-60 lbs. of fine flour per hour, and comes with a handle to use in the absence of electric power. Even better, you can order for $9.95 a sprocket which converts the mill to bicycle power.

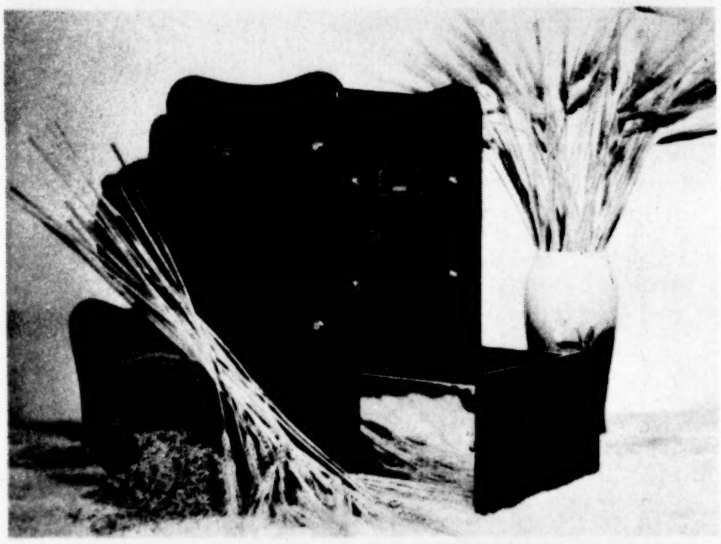
Home Remedies (cont.)

Magic Mill

The Corona and other hand grinders are hard enough work, and whole grains are better enough for storage and cheaper enough to buy that you might consider going in with friends on a joint purchase of the best electric mill. Stone ground flour at 60 lbs/hour. Hand or bicycle conversion optional.

—SB

Magic Mill
$259.00 (FOB Salt Lake City; 51 lbs.)
from:
Magic Mill, Inc.
Salt Lake City, UT
84101



Mormon advice

It's time for a deep bow to the Mormons for their research and practice in food storage and general-emergency readiness.

Here is the full text of a recent message to Mormons here in Marin County (sent to us by Kathy Mayer). It has forethought considerations— and generosity— we've seen nowhere else in the doom literature generally available.

—SB

THE CHURCH OF JESUS CHRIST
OF LATTER-DAY SAINTS
Marin Stake
Novato, California 94947

Church Welfare Program - Stake President's Message
Individual and Family Preparation

TO:

THE MEMBERS OF THE MARIN STAKE

As President of our stake I have been concerned about our making provisions for our families in emergency situations that may come to any of us as a result of illness, unemployment, fire, riot, economic dislocation, war, earthquakes, etc. It is not my desire to make a mountain out of a mole hill but I do think we should consider the problems that may confront us and how they relate to the area where we live, and to our families.

The Church Program does not include the concept that we will all flee to Utah if an emergency comes. The Church in Utah would not be able, nor does it expect to send us supplies to meet all emergency situations. Instead we are expected to take care of our selves and continue building up the kingdom here in our area.

We are all familiar with the prophecies that point to the fact that we are living in the last days. Prior to the coming of our Lord and Savior, Jesus Christ, we know there are to be troubled times, with wars, rumors of war, strife and tumult, until the whole earth will be filled with confusion and chaos, so much so that it will be difficult to know right from wrong, and eventually will bring an end to nations before the Savior comes. We have many promises that the Lord will preserve his people if they have lived righteously. This does not mean we will individually be spared from the challenges and hardships that will accompany this period. I do have a firm belief and faith that the Lord's plan will triumph in the earth, making the eventual establishment of a millenial reign of peace with the Church forming the basis of a stable government under Christ.

The most important thing for us to do is live righteously no matter what happens to us in terms of physical difficulties so that our goal of exaltation in the Celestial Kingdom will be assured. It should be the goal of every member of this stake and every family to build spirituality into our homes so that we will be better able to live Christ-like lives thus making it possible to come before our Father in Heaven to seek his guidance, direction and protection. To enjoy these blessings we should meet each request to work in His church and in His Kingdom on the earth, in welfare assignment, money raising projects, on ward chapels etc., and see to it that each request and assignment is met fully and properly to the best of our ability. If we fail in doing this we will be unable to work cooperatively with our fellow men when serious emergency situations arise.

The Prophets of the Lord have given us direction in what to do. In the June 9, 1973 issue of the Church News the "Autonomous Welfare" area was presented. Areawise we can expect more and new welfare projects with increased interstake cooperation with each of us asked to meet increased responsibility with both work and sacrifice.

In the meantime there are things we should and can do. Listed below are some specific suggestions that will be helpful in making preparation for the future, if and when a problem may arise:

1. Get one years supply of food, including some permanent type storage as well as rotatable stock. If this cannot be done get as much as you can, a little at a time.

2. Get yourself and family out of debt. Avoid unwise debt. (Do not charge anything you cannot pay for in full when the bill is presented.) Be sure each member of the family understands the family finances and knows where important papers are kept.

3. Plant a garden and fruit trees. Use part of your lot to develop a home garden. Plant fruit trees in place of general type shade trees so that we can produce fruit to eat and for canning purposes.

4. Get a supply of wood that can be used for heating and cooking if gas and electricity should be lost.

5. Have some candles and a supply of dry matches on hand. A kerosene lamp, kerosene (this must be stored safely) in a tight metal container.

6. Arrange a source of water in case of an emergency. Store many gallons in Clorox bottles or similar containers to be used in emergency for drinking and preparing food. If possible a well on your lot may be beneficial.

7. Learn how, and prepare food for storage and use over the winter by canning or drying. Have on hand some bottles and caps for home canning.

8. Talk with your neighbors about cooperation. Find out their resources and how you can help them and they in turn help you.

9. Be ready and willing to cooperate with your police, firemen and civil defense in their efforts to meet emergency situations.

10. Be prepared to show true brotherly love and service to others by sharing with those truly in need. True brotherly love in harmony with the gospel would be to share rather than fight and drive people away.

11. Have all necessary shovels, spading forks, hoes, rakes, hammers, nails and other tools that may be needed.

12. Have on hand a roll of plastic material that could be used to cover windows, if broken.

13. Have on hand a years supply of clothing, extra blankets, shoes, etc., to share with those who may have lost everything.

14. Be ready to take some one into your home, and care for those injured or in need.

15. Be ready to care for the sick, have some medical supplies and provisions on hand (including special medicines, vitamins, insulin, etc.) if needed.

16. Know and understand sanitary procedures and how to implement them in case of need.

17. Know who your home teachers are and how to get in touch with them.

18. Be ready to work for what you get. Do not expect a handout so long as you are able to work. Seek to repay in labor or services for all help received. Be ready to help others without repayment.

19. Have a years supply of money on hand where it could be available in case an emergency should arise.

20. Have an emergency kit prepared (food, clothing, bedding, medicines, first aid) on hand, so you could move to temporary quarters if circumstances warranted doing so.

21. The Stake Presidency, High Council or your Bishopric would appreciate hearing from you and how you feel about these matters. Especially if you have some suggestions, write them down and send them to us.

We encourage you to live so that inspiration for you and your family may be forthcoming. Use your personal initiative in preparing for the future and then seek help from the Lord.

May the Lord bless us so that we may enjoy the blessings that come from working together with all good people to accomplish the righteous purposes necessary in preparing the way for the establishment of peace under our Lord and Savior, Jesus Christ.

Sincerely your brother,
Weston L. Roe
President, Marin Stake

Cheap Squid

John Drury notes from Salinas, California, that squid "tastes like abalone and costs 47¢ a pound around here." You can get a good recipe for that by going to the library and finding a Spanish or Italian cookbook.

Paper Logs

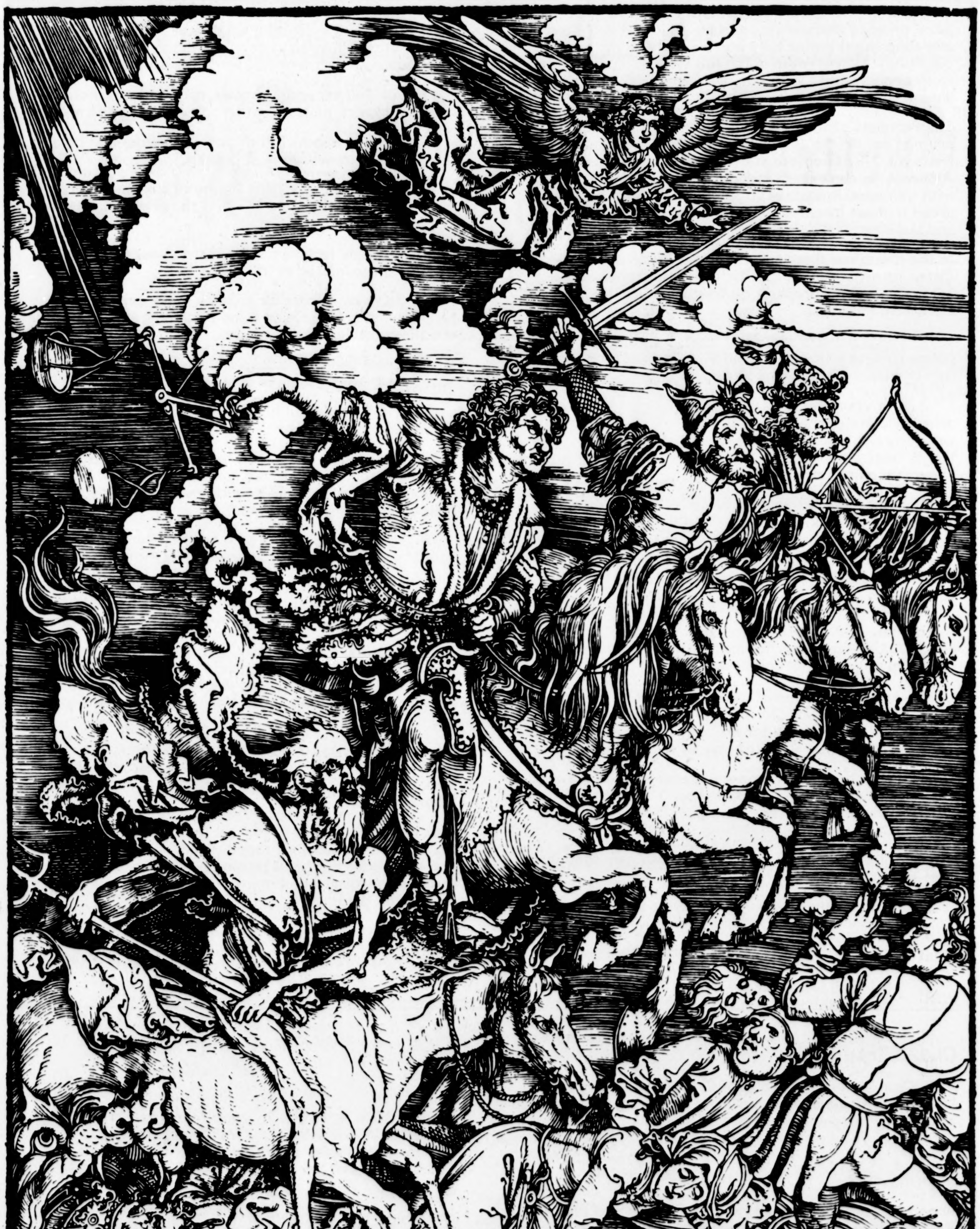
According to The Christian Science Monitor *and the* Maine Land Advocate, *newspapers may be easily made into logs by a method devised by David E. Lofgren of the University of Utah. Fold sections of the newspaper in half. Soak overnight in water and detergent (for more rapid soaking). Roll the wet sections on a smooth one-inch thick rod (for burning ventilation) until the "log" is 2-4 inches in diameter. Slip off the rod and lean upright to dry. When dry, a log will burn for half an hour.*

V-4

Mother Earth News No. 26 *notes that if half the cylinders are depowered in a V-8 (by modifying carburetor and valve train) gas mileage can improve to 154%. Old WWII gas rationing trick.*

For a 20-year car

Moneysworth, *18 March 74, has a report on the central secret of how auto mechanics keep their own cars running forever: CHANGE OIL AND OIL FILTER EVERY 2-3000 MILES.*



AD

Ehrlichs' Guide to the Apocalypse:

FOOD

BY ANNE H. EHRLICH AND PAUL R. EHRLICH

This is material from a forthcoming book (to be called something like **The Ehrlich Guide to a Livable Future,** *Ballantine, available Fall '74). How the book should be titled has been much disputed—— "The People Crunch," "What's Coming," "Son of Population Bomb." I like Anne's late night suggestion: "HERE IT COMES, TURKEY LURKEY!"*

The Ehrlichs have co-authored previously **Population, Resources, and Environment** *(1970, Freeman) and* **Human Ecology** *(with John Holdren; 1973, Freeman).*

–SB

In the winter of 1973-74, Americans seemed most worried about the state of their future fuel supply. But we probably should have been more concerned about the quality, quantity, and price of our future food supplies. People in other parts of the world may face food problems that are more immediate and severe than those we will confront, but Americans will soon be forced to make drastic changes in their eating habits. With a little understanding of the international food situation and of the agricultural system, you can tell what is coming in a general way and put yourself in a position to anticipate more specific trends.

Two essential points should always be kept in mind when considering the system that supplies us with food. First, food is obtained at an inevitable cost to the environment, a cost that is dependent both on the number of people supported by a given area of farmland and on the quality of the diet being consumed. A sparse population subsisting on a mainly vegetarian diet generally makes less of a demand on the environment than either a sparse meat-eating population or a dense vegetarian population. Second, an increasingly important element in the food picture is the amount of energy that must be consumed to maintain high levels of agricultural productivity. In general, the more intensive the agriculture, the greater the energy subsidy and, of course, the greater the accompanying deterioration of the environment.[1]

Affluent Americans, most of whom have never had to worry about where their next meal was coming from, have largely forgotten the importance and value of food. Even among developed countries, Americans spend the smallest percentage of their incomes for food——an average of sixteen percent in 1973. By contrast, people in Japan were spending an average of 31% of their incomes on food in 1973, and in Calcutta food took over 50% of a family's income.[2]

Because Americans have long taken food for granted, when food prices began rising precipitously in the United States in 1972, the reaction was widespread consternation and then rebellion in the form of abortive meat boycotts. Public consternation was reflected by the actions of the Nixon administration in ill-advised attempts to control rising food prices——actions that did little to ease the blow to consumers. By inducing shortages, price controls only served to complicate and aggravate the situation. The causes of escalating food prices and shortages, despite reams of newspaper explanations, were largely misunderstood. The public assumed that American farmers and middlemen were somehow ripping off consumers, although many of them were caught in a squeeze between rising costs and controlled retail prices.

These disconcerting, but still minor, disruptions in what Americans have come to regard as their dependable food supplies were largely part of a ripple effect caused by the far more serious food problems in other parts of the world. Reduced harvests in some temperate areas such as Russia, together with inadequate monsoons and consequent crop failures in India and parts of Southeastern Asia, created enormous pressure on what grain was available for sale in the international market. Most of this grain came from the United States and Canada. In 1973, the U.S. exported what amounted to 75% of its 1972 wheat crop, over 50% of its soybean crop and fifteen percent of its feedgrain. Such extra-

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ordinary depletion of domestic stocks was bound to produce shortages.

THE FOOD CRUNCH

The age of scarcity has been all too real for hundreds of millions of people in the underdeveloped countries for decades. Reductions in the supply of gasoline and electric power would be unnoticed by many of them, since they have never had access to either. The most serious shortage they have faced has been a food shortage——a shortage so severe that in the decade of the 1960s, between ten and twenty million people were dying prematurely each year because they had inadequate diets.[3] This vast tragedy, however, is nothing compared to the nutritional disaster that seems likely to overtake humanity in the 1970s (or, at the latest, the 1980s). Due to a combination of ignorance, greed, and callousness, a situation has been created that could lead to a billion or more people starving to death.

The world food situation can be discussed in terms of three interrelated factors: supply, demand, and distribution. In the past decade, per capita food supply has increased in the developed countries, which were already well fed. The per capita supply remained essentially constant in the underdeveloped countries, where a significant portion of the population constantly suffered from hunger. The populations of those countries have been increasing rapidly, and in those ten years perhaps one-half billion people have been added to the ranks of those with inadequate diets. Thus, while the proportion of the world's people suffering from undernutrition and malnutrition (undernutrition results from lack of calories; malnutrition results from an inadequately balanced diet——most often shortage of protein) probably remained about the same during the last ten years, there are many millions more hungry people today.

In underdeveloped countries, there has been no great increase in income and therefore little increase in the per capita demand for food——that is, the desire and ability of the average person to buy food. Thus the growth in total demand for food in those countries has been chiefly the result of population growth. Since the early 1950s, most of these populations have been growing at between two and three percent per year——rates that would double the number of people in 24 to 35 years. In the overdeveloped nations, on the other hand, where population growth has been considerably slower (about one percent per year),[4] much of the rise in total demand for food has been a result of increased affluence, leading to rising per capita demand.

How affluence affects what happens to the world's supply of food can be seen by looking at both direct and indirect consumption of grains——the most important of man's foodstuffs. In poor countries, the average person consumes slightly over a pound of grain a day, virtually all of it directly. The average American, by contrast, consumes five times as much grain, even though he or she only eats less than half a pound directly (mostly in bakery products and breakfast cereals). The remainder is consumed indirectly. That is, it is fed to farm animals and then eaten second hand as steaks, pork chops, fried chicken, eggs, milk, and so on. Increases in food consumption in overdeveloped countries in recent years have mostly been achieved by increasing the indirect consumption of grain. These people, especially Americans, are not eating more food; they are eating more meat, poultry, and dairy products. Rich Americans (six percent of the world's population) not only consume about 30% of the world's natural resources, they also consume 30% of the world's meat.

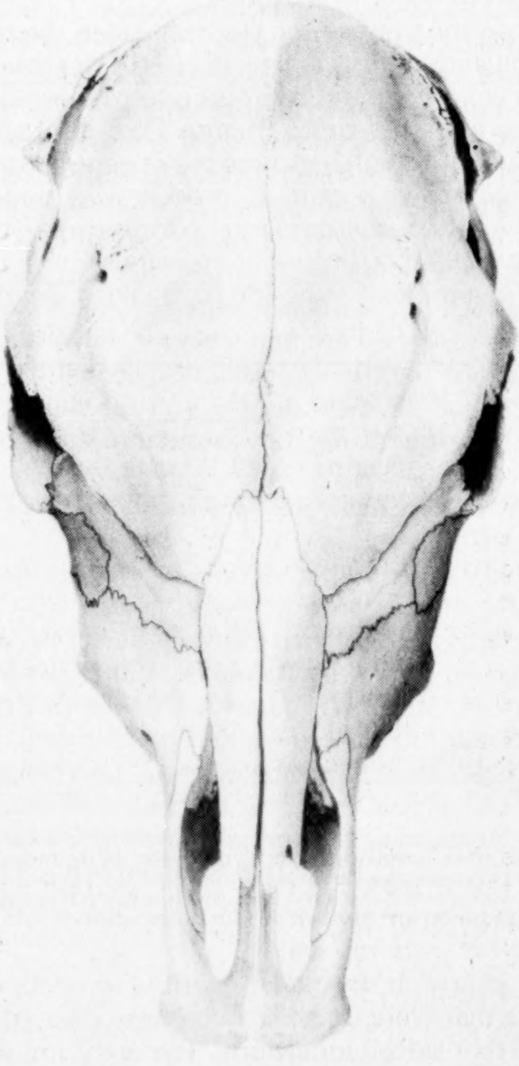
In order to produce the protein-rich, highly varied diet of the average American, nearly five times the agricultural resources (such as land, water, fertilizers, and pesticides) are needed as are required to feed a citizen in a poor country.[5] In the process of feeding himself, as in almost all areas of activity, the gluttonous American has a disproportionate impact on the ecosphere.

This brings us to the third major factor in the food problem——distribution. Food scientist Georg Borgstrom has stated that if every human being received his or her precise "share" of the world's food supplies, everyone would have enough calories and everyone would be slightly protein-deficient. There are, of course, many uncertainties involved in making such a statement, but it is related to two assertions that can be made with confidence. First, total world food production clearly is not significantly greater than that required to provide an adequate diet for the present four billion people, and may be somewhat less; second, most of today's hunger can be traced to problems of distribution.

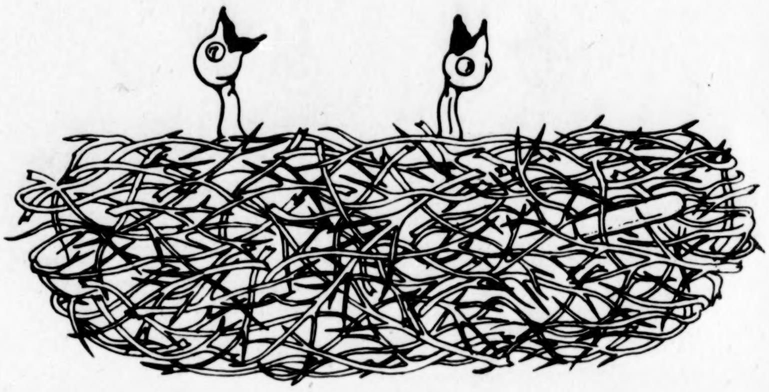
The most obvious distributional problem with food is what Borgstrom has called the "protein swindle;" the trade system by which large amounts of protein are moved from the malnourished poor nations to the overfed rich. In the late 1960s, for instance, fish exported by Peru alone to developed countries would have been enough to make up the protein deficit of all Latin Americans. Poor nations all too often export food that is needed at home in a world where money, not need, determines international flows of goods. For example, a recent 40% rise in meat production in Guatemala was accompanied by a six percent decline in Guatamalan per capita meat consumption.[6]

Maldistribution among nations is, however, only part of the story. In virtually all countries, some people are well fed while others go hungry. Millions in the United States still do not have adequate diets. The poorest people in countries like Mexico and Brazil have not shared in what income improvement there has been and continue to subsist in nutrionally marginal situations.

When it is described in these bland terms, one might conclude that the world food problem, although serious, could be solved. After all, what appears to be needed is simply some combination of dampening demand, increasing supply, and modifying distribution patterns. This may sound simple, but in practice the necessary changes may be impossible to achieve. Indeed, we think the chances of solving the food problem are extremely slight, and that a great increase in the death rate due to starvation will occur well before the end of the century, quite possibly before 1980.



Pamela Cope Vesterby

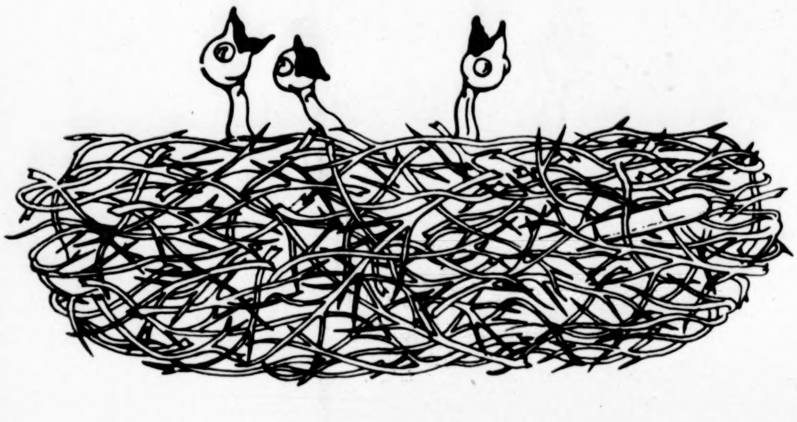


THE NEW FAMINES

Consider the situation in 1973. Public attention was called to a large-scale famine in the sub-Saharan region of Africa when the nations of Mauritania, Mali, Niger, Chad, Upper Volta, and Senegal had undergone six consecutive years of drought. Newspapers reported that "untold thousands"[7] had died of starvation in the famine. Further, there were rumors that this was a vast underestimate and that perhaps 1.5 million people had perished. As many as 100,000 more people died of starvation in Ethiopia,[8] which also suffered from drought. Not only are statistics difficult to come by because many of the deaths are occuring among nomads in very poor countries, but, at least in Ethiopia, deliberate attempts were made by local government officials to conceal the famines.[9] What seems certain is that the loss of livestock has destroyed the way of life of some proud nomadic peoples like the Tuareg, forcing them to become hangers-on around the fringes of poverty-stricken towns. Even though 1973 rains were better than those of the previous five years (but not normal), the region remains in deep trouble because of the lack of breeding animals and seed stocks from which to start again. In short, the perennial optimists, who a few years ago were laughing at predictions of major famines in the 1970s,[10] have already been proven wrong.

But, "what the hell," you say, "the world has always had famines and probably will continue to have——what has this got to do with me?" It seems to be an all-too-common human ability to be able to bear other people's suffering stoically. But even those who don't care about other people dying far away should not take the sub-Saharan drought lightly. Events there are symptomatic of far more universal food problems, food problems that will sooner or later have a dramatic affect on American pocketbooks and stomachs.

In 1972 and 1973 there were also serious crop failures in India, Pakistan, Bangladesh, Afghanistan, Nepal, Ceylon, Indonesia, the Philippines, The U.S.S.R., China, and parts of tropical America. In May last year, Dr. Addeke Boerma, director of FAO (United Nations Food and Agriculture Organization) announced that world reserves of grains were at their lowest level since 1952, amounting to the



equivalent of what the United States consumes in seven weeks. The world population in 1952 was some 2.5 billion people; in 1973 it was almost four billion. Therefore, in early 1973 the world's per capita reserves were far lower than they had been at the previous low, 21 years earlier. For Americans and Europeans, this led to some shortages and higher food prices. But for undeveloped countries, after a quarter of a century of agriculturalists' assurances that they could feed an ever-increasing population indefinitely,[11] and after five years of a "green revolution" that many uninformed optimists promised would solve the world food problem, a very large portion of the human population was once again threatened with massive famines.

The argument is sometimes heard, however, that mankind has not caused escalating food shortages, that they must be blamed on "bad weather." This is a preposterous evasion. "Bad" weather is a characteristic and well-known feature of the planet Earth. Climatic change occurred naturally throughout the past, caused by such things as solar cycles, changing positions of continents, and cycles of volcanic activity. Today these natural changes are continuing and interacting with other changes induced by human activities. Industrial societies produce air pollution, cut down forests, and build heat-producing cities. Overpopulated farming societies not only cut down forests, but also inject large amounts of dust into the atmosphere, forming agricultural hazes. It now seems that all these human activities may be contributing to recent unfavorable shifts in the climate––especially the monsoon failures that are responsible for the sub-Saharan droughts and that have intensified already severe food problems in southern Asia.

The factors that control the climate are still not thoroughly understood. Small changes in such things as the dustiness of the atmosphere may cause shifts in the colossal interacting forces that create planetary weather patterns. One of the scientists most knowledgeable about these weather patterns and their relationship to food supply is Professor Reid Bryson of the Department of Meteorology at the University of Wisconsin. He has a new theory about the climatic effects of adding carbon dioxide (CO_2) and dust to the atmosphere. It has long been realized that, as far as global average temperature is concerned, these should have opposing effects; additional CO_2 should tend to warm the planet, additional dust to cool it.

Bryson has concluded that,[12] in addition to these effects, both dust and CO_2 operate together to change atmospheric patterns so as to make the monsoons in Africa and southern Asia less dependable. Monsoon rains come from moisture-rich air masses that normally move north from the South Atlantic and Indian oceans each summer. These rains provide the moisture on which perhaps half a billion people depend for growing their crops. According to Bryson, carbon dioxide and dust pollution from human activities and the injection of fine dust into the atmosphere by renewed volcanic activity are combining to block the northern movement of the monsoons. He doubts that the monsoons will return to India regularly in this century.

If Bryson is correct about the monsoons, then a large increase in the human death rate, with hundreds of millions of additional people perishing, will occur in the near future. But there is a potentially far more ominous conclusion about future food supplies that can be drawn from meteorological data. By convention among meteorologists, "normal" weather is that which occurred between 1930 and 1960. Careful reconstruction of past climate, however, shows that this period was the most extreme weather pattern to occur in a thousand years. Those 30 years were on the average the warmest since the days of Viking exploration. Since 1960, the average temperature worldwide has been dropping to levels more typical of earlier times (Figure 1). But virtually all of mankind's high-yield crops are genetic strains selected to give maximum productivity under a narrow set of environmental conditions––those that prevailed during what appears to have been a once-in-a-millenium period of freakish weather!

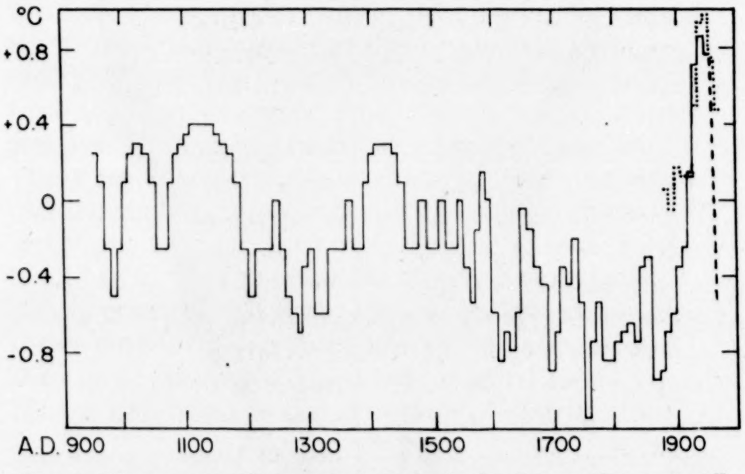


Fig. I. Mean annual temperature in Iceland over the past millenium (after Bergthorsson). The dashed line indicates the rate of temperature decline in the 1961-1971 period, and the dotted line shows the variation of Northern Hemisphere mean temperature plotted to the same scale. (from Bryson)

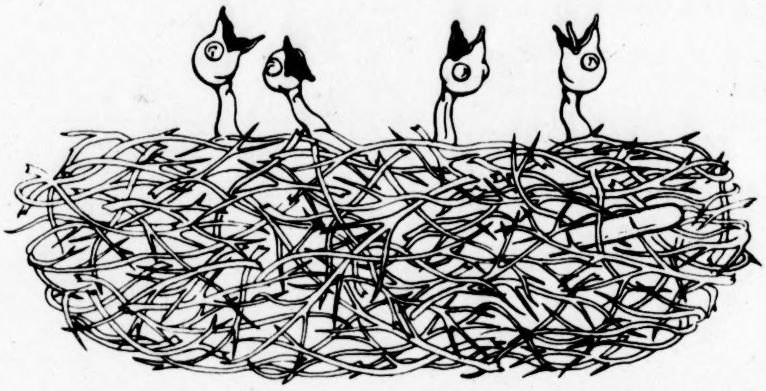
Of course, it should be possible to select new crop strains that will give their maximum response under a different set of conditions. Two very important factors are required to do this successfully: time and genetic variability in the crops. Time might be available if climatic changes were slow enough, their recognition prompt, and the human response rapid. But climatic change is not necessarily slow (as we have seen in the sub-Saharan region), it is extremely difficult to distinguish short-term fluctuations from long-term trends, and agricultural scientists have, for the most part, failed to recognize the evolutionary dimension of their business.[13]

Even if time were available, however, the requisite genetic variability might not be. One of the major errors made by agriculturalists in the last two decades has been to encourage the spread of single strains of high-yield crop plants so that they now dominate large areas. Where dozens of traditional varieties of wheat once grew in Asia Minor, for instance, now only one modern strain is found. The growing uniformity of crops has been accelerated by the green revolution——the introduction of fertilizer-sensitive, high-yielding crop strains into UDCs. Genetic variability, once lost, is for practical purposes gone forever——and with it goes man's ability to develop new strains of crops. The ability to breed new strains is critical not only to meeting changing climatic conditions, but also to maintaining crop resistance to pests.[14] In terms of the ability to maintain high-yield agriculture, mankind is rapidly painting itself into a corner.

As if the deteriorating agricultural situation were not bad enough, the picture is equally grim as far as food from the sea is concerned. Two decades of steadily increasing yields of fishes came to an end in the early 1970s as overfishing, oceanic pollution, and destruction of estuaries have taken their toll. The 1973 catch of table-grade fish was twelve percent less than the 1970 catch.[15] Considering population growth, each person's share thus was some eighteen percent less than it had been three years before. The consensus of marine biologists seems to be that the world catch now is about at its maximum. As the population continues to grow, therefore, the amount of protein from the sea available for each individual will continue to shrink.

THE AMERICAN CORNUCOPIA

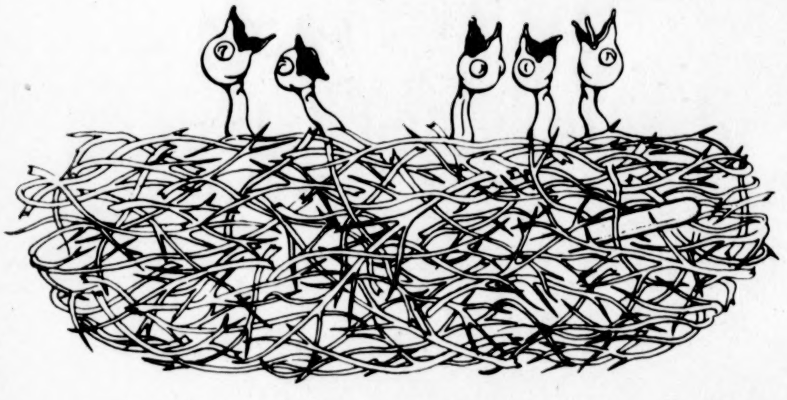
Two myths have long dominated American beliefs about food: (1) that the United States is completely self-sufficient in food, and (2) that the United States feeds the world. These, like many other myths, contain elements of truth, but much is left out. The U.S. does export more food than it imports, but it still imports a good deal. Consumers are at least vaguely aware of such imported food items as tropical fruits and nuts, vegetables from Mexico, coffee from Brazil, Dutch chocolate, French cheeses, and Danish ham. These imported foods add variety to our diets, but are by no means essential to our health and well-being. But most Americans are unaware that we normally also import large quantities of fishmeal and seed press-cakes which are fed to livestock and pets. One factor in the meat price rise was a severe shortage in fishmeal, due to the virtual disappearance in 1972 of the anchoveta fishery in Peru.



The United States undoubtedly could become self-sufficient in food unless the population grew substantially larger. There would, of course, be a high energy cost and some sacrifice in variety of foods available, but the nutritional quality of the average diet would remain high. The same cannot be said for very many other nations.

In exports, the U.S. falls far short of "feeding the world," even though it is the world's largest exporter of food. Our food exports are mainly grains and soybeans. In most commodities, our contribution is a very small fraction of world production. For example, in 1971 the world (excluding China) produced 353 million metric tons (mmt) of wheat; of that, the U.S. produced 44.6 mmt and exported 17.2 mmt. Our share of the soybean harvest and export market are larger (47.7 mmt 1972 world soybean production; 34.9 mmt U.S. production; twelve mmt exported), but most of the exported soybeans go to other ODCs.[16] And most of this valuable protein food is fed to livestock, both here and abroad.

Moreover, the vast bulk of our exports are sold, not given away. In 1972, the "Food for Peace" program exported five million metric tons of grain, and most of that was merely sold at below market prices, not given away. In 1973, squeezed by grain shortages, the program was severely curtailed——at a time when it was desperately needed. Twelve percent less grain was made available for sale at lower prices, and no budgetary allowance was made for higher grain prices in purchasing for the program. The budget for Title II, the part of the "Food for Peace" program that does give grain free to the needy, was slashed by 30% for fiscal 1974. Growth of the export market for grain is mainly responsible for this change in policy.[17] A decade ago we produced far more grain than we could consume or sell, and "Food for Peace" absorbed more than ten times as much of our surplus production as was sold abroad. By 1973 the situation had reversed. With a booming world grain market helping our balance of payment deficit, the attitude of the USDA was, if wheat can be sold for a high price, why subsidize giveaways?



Alarmed by the drops in food production in the poor countries, the disappearance of grain reserves, and the apparent drying up of the few programs that distribute free food to the world's hungry, a few world leaders have begun to call for the establishment of a global grain reserve as a hedge against famine.[18] This is an idea whose time was ripe 25 years ago; but better now than never––if it isn't already too late.

WHAT'S NEXT?

What is the future likely to hold as far as food supply is concerned? In the global situation, the major factor will be the weather. If monsoon failures continue in the sub-Saharan region, that area will require massive imports of food to prevent the deaths of perhaps six million people. Although the region involved is large, it is relatively sparsely populated. Only about 25 million people live in the six countries most hard hit in the sub-Saharan region, and just slightly more than that in Ethiopia. Assuming the food situation doesn't deteriorate badly elsewhere, emergency supplies could probably be provided for a long time. If, however, the climatic change and its effects are semipermanent (as seems probable), something will have to give, since the populations in these nations are doubling in size very 25-35 years. They face in microcosm the major dilemma of humanity: either birthrates must decline or death rates will rise.

Should monsoon failures persist in south Asia, however, no solution is possible. Well over one billion people live in countries affected by the Asian monsoon, and no conceivable transfer of food could make up the inevitable deficits. A soaring death rate in this area alone could bring the world population explosion to a halt.

Moreover, the energy crisis, which only inconvenienced Americans, has already guaranteed substantially reduced crops in the Indian subcontinent this year simply by tripling the cost of fertilizer and hampering the already marginal transport system. Even without monsoon failure, India and Bangladesh are on the brink of famine this year.

The midwestern regions of North America are the last granary of mankind with the capacity to produce substantial and dependable surpluses (food for which there is no domestic economic demand). But unhappily this area is subject to a twenty-year drought cycle, and dry periods occurred in both the 1930s and 1950s. Should the cycle recur in the 1970s, this ultimate resource would be threatened, and the food situation in the United States would move from marginal to critical. A midwestern drought, difficulty in filling our own import needs, and the increased demand generated by foreign purchases could combine to make serious food shortages a reality in the United States.

One general prediction can be made with confidence: the cost of feeding yourself and your family will continue to increase. There will be minor fluctuations in food prices, but the overall trend will be up. How much costs will rise depends on such unpredictable events as the weather in many parts of the world, how the international community reacts to food shortages, and whether societies and governments devise means of meeting shortages in reasonably humane and equitable ways. If the international distribution of food continues to be governed purely by short-term economic considerations––if, for example, wheat goes to the highest bidder regardless of need––the poor in the United States will be very hungry, and even the middle class will be in for some bad times.

Even if the subtropical monsoons regain the dependability of the last few decades (none too great at that, with an average of two failures in each decade in the Indian subcontinent) and if the next drought of the twenty-year cycle in North America fails to materialize, the inexorable two percent annual growth of the population will continue to strain mankind's food-producing abilities. Furthermore, even if production manages to keep pace with population growth for awhile, the energy subsidy and environmental costs of agriculture will continue to mount, and food will become dearer to the rich as well as the poor.

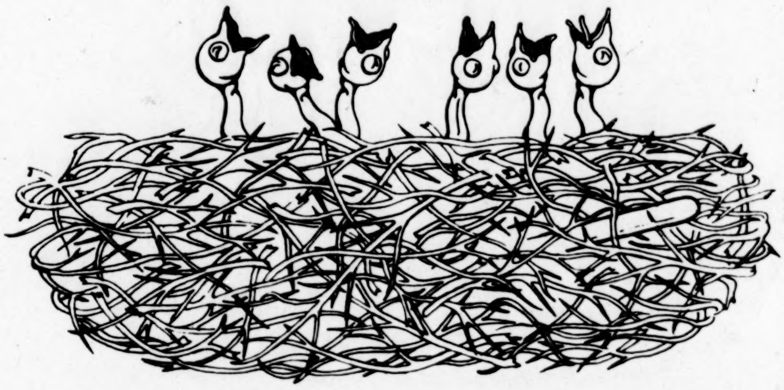
On the other hand, if, as seems likely, the weather situation deteriorates, chronic shortages of various foodstuffs will become commonplace in overdeveloped countries, while famines will spread in underdeveloped countries. If the international community organized itself intelligently, fairly, and promptly, the famines in UDCs could be ameliorated with relatively minor sacrifices by people in ODCs. And if governments within nations planned and regulated their agricultural policies, sudden domestic shortages could be avoided. These positive statements, of course, refer only to the short term, perhaps the next decade. Without both planning and organization on the food front and a rapid decline in world fertility to below replacement level, the prognosis for 1990 and beyond is completely negative. A massive die-off from starvation will be unavoidable.[19]

If the botching of the United States agricultural policy goes on, Americans can expect to have more unpleasant surprises like the one of the winter of 1974, when they discovered that nearly all of the wheat crop was disappearing on the foreign market, and bread prices were rising accordingly. Fortunately, one of the major buyers on this occasion (the U.S.S.R.) was willing to delay delivery of some purchases until the new crop was harvested, but such cooperation can hardly be counted on.

The U.S.S.R., in engineering its massive grain purchases in 1972, dealt directly and secretly with several U.S. grain dealers.[20] None of them knew what the others sold, and the government——with the exception of one Assistant Secretary of the Department of Agriculture——did not know how much was sold until the deals had been signed. Moreover, it was all sold at low prices subsidized by the U.S. government. The total cost to taxpayers of subsidized grain sales abroad in 1972 was some $300 million. Curiously enough, history repeated itself the following year, with both the U.S.S.R. and the People's Republic of China making very large grain purchases (but this time not subsidized by the U.S. government). Altogether, between 70% and 80% of the 1973 wheat crop was sold abroad. Some mechanism for monitoring foreign sales of essential foodstuffs and for limiting such sales if they unduly threaten domestic supplies is a badly needed element of any new agricultural policy.

Food and agricultural policies of the recent past have mostly consisted of a hodgepodge of regulations supposedly aimed at protecting the health of consumers, keeping farmers from bankruptcy and inhibiting overproduction. Even with these limited goals, success has been mixed. The relative safety, quality, variety, and abundance of food available to most Americans are undeniable. But the increases in productivity and efficiency (measured in terms of manpower and yield per acre) in agriculture have been achieved at the cost of huge energy subsidies and the rapid disappearance of the family farm. Costly farm subsidies have generally benefitted agribusiness tycoons far more than small farmers——one more example of the American system of socialism for the rich and capitalism for the poor. "Overproductivity" appears to be a problem of the past, partly because of an increased population of American consumers (including, one might note, a higher than usual proportion of young adults——the biggest eaters) with expensive tastes and the money to indulge them, and partly because of the increased demand from overseas.

The U.S. Department of Agriculture is gleefully anticipating a continued tight seller's market for the next several years. But even those eternal optimists admit that a brisk international trade in grains is likely to hinder the establishment of a large reserve grain supply, whether a domestic one or an international storehouse, in the near future.

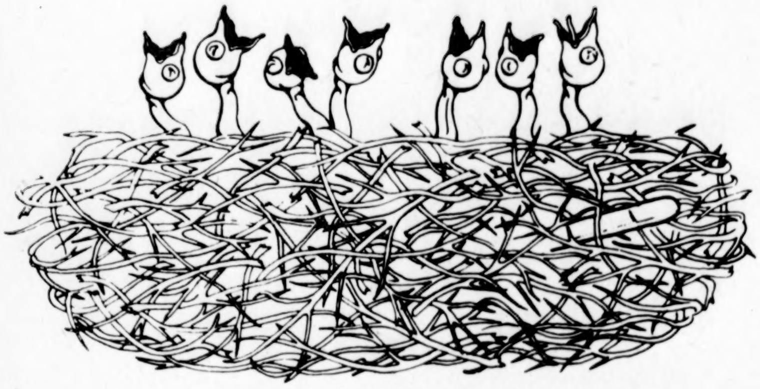


Thus consumers can look forward to higher prices both for staples like bread and for meat, poultry, and dairy products, which are indirectly produced by using feedgrains. Continued foreign demand for wheat and feedgrains will force prices still higher (wheat prices at the farm level tripled in less than two years——from 1972 to 1974), and the costs of producing animal foods will rise with them. Even more disturbing, some peas and beans——inexpensive protein substitutes for meat——quadrupled in price within a year. Very good luck with weather, producing record yields over much of the world, could lead to temporary reversals in this pattern of price escalation, but they will certainly be only temporary. And rising prices may be accompanied by increasing shortages. The age of scarcity could easily mean more to Americans than empty gas tanks——at best it will mean radical changes in diet, at worst widespread hunger.

FEEDING THE AFFLUENT AMERICAN

Although a far smaller portion of its budget is allocated to food, the average American family is more sumptuously fed than a comparable family in virtually every other nation, as measured by the amount of high-protein animal food consumed. Indians on the average consume about seven pounds of meat per person per year, the Japanese about 25 pounds per person (Japanese consumption of meat has risen rapidly in recent years), and Americans nearly 200 pounds each. Figure 2 shows the level of meat consumption in various parts of the world and its relationship to income.

American grain consumption reflects our rich diet——it is about five times as high per person as the grain consumption of people in underdeveloped areas. However, over 80% of our grain is first fed to the animals from which we get our meat, poultry, eggs, and dairy products. Most of this grain is thus lost to human nutrition. Figure 3 shows the disparity in grain consumption among nations. With American livestock feeding methods, it takes about three pounds of grain to produce one pound of poultry, five pounds of grain for one of pork, and ten for one of beef.[21] The ratio of protein loss is even more startling. As much as 21 pounds of protein in animal feed are needed to produce one pound of beef or veal pro-



tein, eight pounds for a pound of pork protein, and a range of three to six for poultry, milk, and eggs.

Looked at another way, the grains and high-protein supplements (soybeans, oilseed presscakes, and fishmeal) now fed to American cattle, pigs, and poultry would go a long way to alleviate hunger among people around the world. It has been estimated that the protein alone would make up 90% of the world's protein deficit.[22]

The shame of all this is that so much of it is unnecessary. American agriculture, while being gloriously productive, is also incredibly wasteful. Among livestock, only swine are necessarily competitive with people for the same food. Cattle and sheep can be raised on forage unsuitable for human consumption grown on land unsuitable for human crops. These animals have been shown to be capable of synthisizing protein for themselves from a diet of urea, starch, ammonium salts, sucrose, and cellulose.[23] Very adequate meat can be produced with very small supplements of grain.

Like other economic activities, however, agricultural ventures are run to make profits. The meat, dairy, and poultry businesses have developed to maximize profits, not to maximize the efficient utilization of valuable resources, be they soil, water, fertilizer, fuel, or grain. Because feedgrains and protein supplements have long been cheap, a steer is fed the mixture that experience has shown will produce the heaviest animal in the shortest time. The result is an excessively fat, but tender and tasty meat. The carcass of an American grain-fed steer is one-fifth fat, a pig is one-fourth fat, and a lamb one-third fat. Small wonder so many Americans die of cardio-vascular disease!

There is no question that livestock production could be conducted far more efficiently, in the sense of competing far less with human beings for food. And the current increases in grain prices may help to bring that about. If grain finishing (fattening of cattle before market on feedgrain) becomes more expensive than keeping cattle in pasture for longer periods, stockmen will change their methods. The trend could be encouraged if grazing land rents were kept relatively low (perhaps through subsidies or tax discounts) and if the public expressed a preference for leaner meat, which is also preferable from the standpoint of human health.

Since, however, well over one-third of the continental United States land area is already used for grazing (now you know one thing that "all that empty space" is doing for you),[24] there is clearly a limit to how far we can reverse present livestock feeding practices without a risk of overgrazing. The ultimate answer must be a reduction in American consumption of meat––especially beef, which with present rearing methods represents by far the least efficient conversion of plant food to meat.

If grain finishing of beef and pork were significantly reduced, what would we do with all that corn? Some of it would still be used domestically for human consumption, and that could be increased. Also, foreign demand for corn is likely to rise. In dryer parts of the corn belt, wheat could replace corn. We could also increase our crop of soybeans, a high-protein crop that could be invaluable for improving the diets of hungry people everywhere and one for which the foreign market is growing. Even in the U.S., as meat prices rise, soy protein is becoming increasingly popular as a nutritious meat supplement.

THE ENERGY SUBSIDY

American agriculture is not only wasteful of food resources, it is a gluttonous consumer of fossil fuels

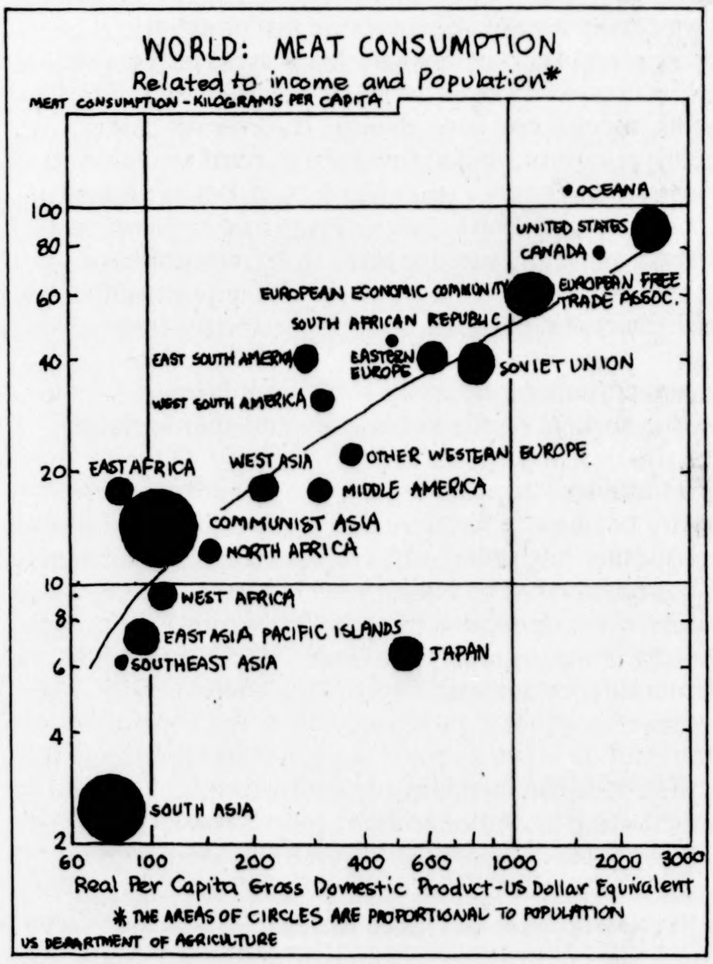


FIGURE II.

Source: FAS Newsletter

and is becoming increasingly dependent on them. Furthermore, most other agricultural systems in the world are eagerly striving to emulate ours––hardly the most prudent course as fuel reserves are being depleted. Of the inflated share of energy that the United States consumes, some twelve to thirteen percent is devoted to putting food on our tables. This sounds modest enough, until one learns that about six times as many calories are used to cultivate and fertilize the land, grow the food, transport it, process it, retail it, and cook it as your body derives from it.[25] Table I shows a breakdown of where the energy is used between the farm and the dinner table.

TABLE I

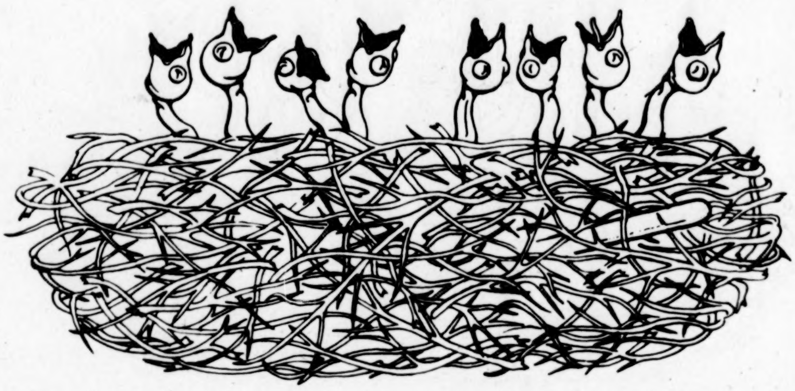
Food Energy Budget, USA 1963

Activity	Percent of Energy Consumed
Agriculture	18.3
Food Processing	32.9
Transportation	2.4
Wholesale and Retail Trade	15.9
Home	30.5
	100.0

(from Eric Hirst, **Natural History)**

A detailed study has been made of the energetics of corn production.[26] Corn was chosen because it occupies the middle range of energy consumption–– it requires less energy to produce than fruits and some vegetables, and more than some other grains such as wheat. It should be pointed out that nearly all corn in this country is used as livestock feed, which is one reason the energy subsidy of American meat production is so high. Since 1945, corn yields per acre have risen 240%, while labor inputs declined over 60%. But while the energy subsidy (in fertilizer, tractor fuel, etc.) more than tripled, the caloric return (calories derived/calories put in) declined from 3.70 to one to 2.82 to one. Much of the increase in yield is undoubtedly due to the energy subsidy, but much could be done to reduce the subsidy without loss in productivity, as we shall see later.

Taking a longer view, it is quite evident that we cannot continue to play this game indefinitely, and we certainly cannot extend it throughout the world. The energy intensiveness of various agricultural systems has been analyzed relative to the density and size of populations they feed and the amount of land available.[27] The results have been extrapolated to determine how much energy would be required to feed thirteen billion people (the projected size of the world population by 2040 if present growth rates continue unchanged) at the Western European standard. The Western European standard offers somewhat less meat than Americans are accustomed to, but it is still a more than adequate diet. It is also somewhat less energy intensive. Nevertheless, in both respects, it is far above prevailing levels in the underdeveloped world.



Given thirteen billion people to be supported by the world's available land (assuming productivity could be maintained), producing the equivalent of a Western European diet would require each year as much energy as the entire world now uses for all purposes. This estimate, moreover, includes only the energy for food production; it does not include the amounts required to make farm equipment, or to transport, distribute, store, or cook the food. Nor was the probable ecological impact of such an enterprise assessed, although it obviously would be colossal. Indeed, the collective environmental repercussions would almost certainly bring the project to halt long before the number of hungry mouths reached thirteen billion.

Direct and Indirect Grain Consumption by Per Capita Income, Selected Countries

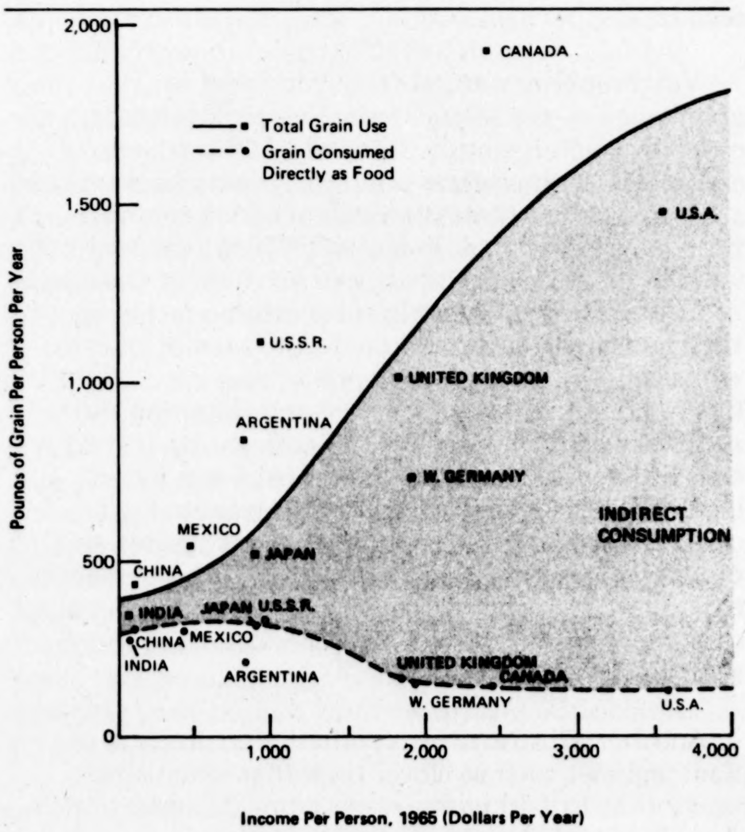
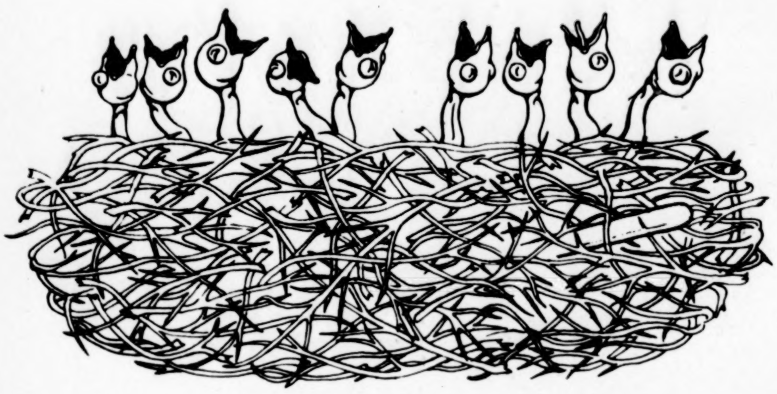


FIGURE III.



STREAMLINING THE SYSTEM

During the energy mini-crisis, the Nixon administration guaranteed American farmers all the fuel and electricity they needed—— and rightly so, since shortages would result in large-scale wastage of food. Nevertheless, there is room in our agricultural system for considerable energy savings without loss of productivity.[28] Interestingly enough, many of the shifts would have environmentally beneficial consequences besides reducing the direct impact of energy use. One of the agricultural practices that requires large amounts of energy is the use of synthetic fertilizers. For instance, in corn production, nitrogen fertilizer is the greatest single element of energy input. Not only does fertilizer require energy in its manufacture, but nitrogen fertilizer is made from natural gas, which, like petroleum, is in short supply. It is therefore hardly surprising that in times of energy shortage, there also is likely to be a shortage of fertilizer.

Yet a superior natural fertilizer exists in abundance——the sewage from livestock feedlots, most of which is simply dumped into our rivers, causing enormous water pollution problems. In addition there is human sewage, which has long been used as fertilizer in Europe, China, and elsewhere.[29] Until now, it has been considered cheaper to manufacture and distribute synthetic fertilizer than to collect, treat, and distribute feedlot sewage; while human sewage has generally been considered by Americans as too unsanitary and requiring too much expensive treatment. (Of course, the cost of cleaning up our rivers, lakes, and bays was never included in the calculations——that was charged on a different bill!) As energy becomes scarcer and more costly, so will fertilizers. This will be a calamity for underdeveloped countries (which have no feedlot resources), but it might push Americans into more ecologically sound practices.[30]

Another substitute for synthetic fertilizers is to plant legumes such as clover or winter vetch alternately (i.e., in fall) with a grain crop. Legumes enrich the soil, especially with nitrogen; and as cover crops they help protect the soil against erosion. They would also reduce plant disease problems in the grain crop and the needs for herbicides, which are also manufactured from petroleum. And finally, legumes are excellent forage crops for livestock.

Much farmwork now done by machine——planting, cultivating, harvesting, pest control operations—— could be done by hand. This would increase the need for farm labor, which might not be a bad idea when unemployment is high and rising. (It is unlikely, however, that competent workers will be attracted to farms unless social justice and decent wages for farm labor can be provided.) Further energy savings could be made by adopting ecologically sound strategies of breeding for crop strains with greater resistance to pests and disease (though this will always be a running battle as the pests evolve means to penetrate the plant's defenses).[31] Breeding strains with lower moisture content could reduce the energy demand for drying.

So far we have discussed only reductions of energy consumption on the farm, but actual production accounts for less than twenty percent of the food energy budget. The largest element of the budget——nearly a third——is devoted to food processing. On the average, processed foods cost three times as much energy as fresh foods (they are also more expensive economically). There are of course many degrees of processing, ranging from pasteurization of milk, which is essential for health reasons, to elaborate frozen TV dinners, in which nutritive value and flavor are sacrificed for convenience.

Like other energy-intensive industries, the huge food processors will soon be feeling the squeeze from the scarcity and increasing cost of energy. Their increased costs, of course, will be passed along to consumers. If the captains of this industry are wise, they will begin to phase out the most energy-consuming items in their lines. But even if they don't, consumers are not required to buy them. We can expect that either processed food prices will become outlandish or quality will decline as processors try to reduce their costs. Either way, they'll lose customers.

Another big chunk of the food energy budget is consumed at the wholesale-retail level; and here also a lot of energy is wasted. One of the most obvious sources is the acres of open freezer and refrigerator cases found in every supermarket. Another is the heat needed in the store to counteract all that refrigeration. You as a consumer could try to persuade your supermarket manager to keep his freezer and refrigerator cases closed. It's not that much trouble to open a case for milk or ice cream. Eventually, rising power costs may force him to do it.

The last big opportunity for energy savings comes between the store and your table, and a big part of that is each housewife's weekly or bi-weekly trip to the supermarket. An obvious way to cut that back is for neighbors who shop in the same stores to form car pools. If you live close enough to your market, you might consider walking with a shopping cart. It's good exercise, besides. Or you might try a three-wheeled bicycle, which can carry quite a lot of groceries.

Perhaps the best solution would be the revival of grocery store delivery services. You could encourage such a trend by suggesting it to your supermarket manager, perhaps with a petition signed by those of your neighbors willing to join you. Finding neighbors who would appreciate such a service might be easier than you think.

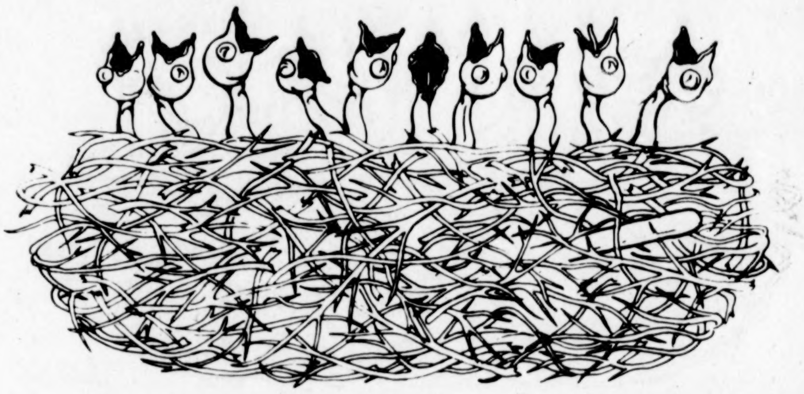
There are numerous ways, which have been well publicized elsewhere, to reduce kitchen energy use. Here are some of them:

- ✓ Don't buy an electric stove or oven if you can avoid it; get gas appliances.
- ✓ If you buy a freezer, get one that opens at the top.
- ✓ Keep your refrigerator and freezer reasonably full.
- ✓ Open the refrigerator door as briefly and infrequently as possible.
- ✓ Don't preheat your oven, especially for long-cooking roasts, and don't peek in.
- ✓ Defrost before cooking.
- ✓ Don't boil a gallon of water for one cup of coffee.
- ✓ Use a pressure cooker if you have one.
- ✓ Fit the pan to the burner.
- ✓ Don't use the self-clean device if your oven has one.
- ✓ Use a charcoal broiler (if the air isn't polluted).
- ✓ Minimize your use of processed foods.
- ✓ Eat cold meals when feasible.
- ✓ Don't run the dishwasher unless it is full.
- ✓ Turn off the dishwasher during dry cycle; open it and let the dishes air-dry.

Voluntarily doing such things will save you money and will conserve some energy for society. But obviously much more energy could be saved if, for instance, the atrociously wasteful practice of installing electric stoves, ovens, and heaters in new homes could be made illegal——at least until the end of the fossil fuel era. Similarly, open freezers in grocery stores could be legislated out of existence. Here, as in other areas, however, it is often difficult or impossible for individuals to behave in an environmentally sound manner because the necessary political leadership and legislative actions have not been taken.

GROW YOUR OWN FOOD

Are you old enough to remember Victory Gardens? During World War II, millions of Americans in residential and suburban neighborhoods planted vegetables in their backyards to supplement the national food supply. The program was a great success, not only in providing extra food, but also in giving a generation of children firsthand knowledge of where their food came from. The Secretary of Agriculture during World War II estimated that an average 30-foot by 50-foot Victory Garden could produce 500 pounds of fresh and 500 pounds of preservable and storable fruits and vegetables each year. At the peak of Victory Garden activity during the war, the Department of Agriculture estimated that half of all domestic fruit and vegetable needs were being supplied by home and farm gardens.

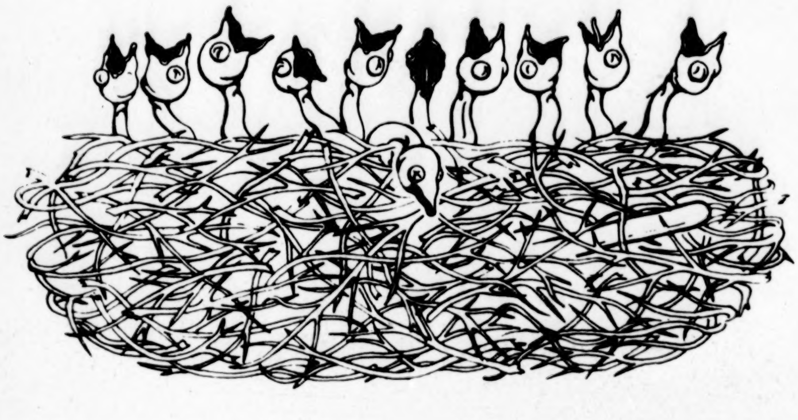


In an era of higher prices and food scarcity, many Americans have revived the idea of the Victory Garden. More Americans than ever before live in suburban areas with backyards, and a great many of them contain vegetable patches. Interest in gaining some independence from the food distribution system is becoming widespread, and commercial organizations are springing up to provide training in such things as subsistence farming.[32] In 1973, home gardeners spent $100 million for seeds, and seed industry spokesmen estimated that there would be a twenty percent increase in 1974. A Gallop Poll in 1973 indicated that 31 million out of 68 million households (43%) had vegetable gardens; an increase of four percent from the previous year.

Millions of acres of fine farm land have been sacrificed to allow people to live outside the cities. There's no practical way that land can be put back into production and the suburbanites returned to the cities——even though such a move would help solve countless problems——but a little of the balance can be redressed with more backyard gardens. Neighbors could trade produce and advice, activities that could help cement friendships. If you have the space, the time, and the inclination, try it. You'll be doing your budget, your body, and your palate a favor.

MAXIMIZING YOUR NUTRITION

As food costs escalate and shortages become commonplace, maintaining a well-balanced, nutritious diet will become increasingly difficult. At



the same time, as life in general becomes more difficult and stressful, you will need more than ever to be well-nourished in order to stay healthy and able to cope.

Many Americans today are surprisingly poorly nourished, considering the variety of food available and their ability to afford it. This is a nation of snackers and soft-drink guzzlers——and frantic dieters. It's amazing how many people——women especially——can be seen at lunch counters eating a piece of apple pie and a cup of coffee, thinking that this is a "lunch," or men breakfasting on coffee and danish pastry. What's worse, many of them think they're dieting because they're eating only 400 calories. Indeed they are, and very little else!

A few years ago, a Public Health Service survey revealed a shocking level of malnutrition among Americans, largely among the very poor, but also to a surprising extent among middle class people who could easily afford plenty of good food.[34] Protein deficiencies were found to be very common, especially among children of very poor families; iron-deficiency anemia was found in one-third of the young children examined in a low-income area; vitamin A deficiency was found in one-third of people of all ages; and even widespread goiter——easily preventable by using iodized salt——was found in many areas. The nutritional deficiencies found in nonpoor families could only have occurred because the people who had them either were ignorant of basic nutritional needs or didn't care.

The teaching of nutrition in schools is usually sketchy at best, limited to telling children they should eat from each of the "four basic food groups" every day. (Sadly, nutritional training in most medical schools is not much better.) The relationship of these food groups to the children's nutritional needs is poorly explained at best. Small wonder they grow up thinking soft drinks and potato chips are good for them.

Everyone should become familiar with the various kinds of essential nutrients and in which foods they can be found. Essential nutrients fall into five categories, each of which will be discussed in more detail below. These are proteins, fats, carbohydrates, vitamins, and minerals.[35]

PROTEIN. Protein is essential for life and health. Your body is largely made of protein and water; to keep it healthy, you must have a substantial amount of protein every day——about one gram for every kilogram of body weight for adults. Growing children and pregnant or nursing mothers need even more. Translated into everyday terms, this means that an average-sized man (160 lbs.) should have about as much protein as is in eleven ounces of steak each day, and an average woman (125 lbs.) needs the equivalent of about eight ounces of steak (unless she is pregnant or nursing, in which case she needs the equivalent of another three to six ounces of steak). However, a 30-pound child needs more than half as much total protein as its mother does. For maximum benefit, a portion should be consumed with each meal. These estimates, of course, are averages. The quality of the proten affects how much an individual needs; much more low-quality protein must be consumed in order to ensure that protein needs are fully met. Moreover, there are wide differences among individuals in their needs for various nutrients. Some people just seem to utilize any given nutrient more efficiently than others do.[36]

Protein is found in virtually all food (except heavily refined ones like sugar and cornstarch), but both the quality and quantity vary from very high to very low. Most people know that rich sources of protein are animal foods: meat, poultry, fish, eggs, and dairy products. But they may not know that many plant foods also contain quite a lot——although lower quality——of protein. Among these plant foods are pulses (peas, beans, lentils), nuts and grains. By judiciously combining plant foods so that they compensate for each other's protein deficiencies, one can still enjoy a high-protein diet while eating much less meat and spending much less money too.

Protein is made of building blocks called amino acids. Human beings can manufacture many amino acids, but eight amino acids cannot be synthesized by the body and hence must be obtained from food. High quality or complete protein is protein containing all eight essential amino acids in approximately the right balance for meeting human needs. The highest quality protein——that having the closest to ideal balance for human beings——is found in eggs, which have a net protein utilization (NPU) of 94. This means that 94% of the egg protein can be digested and used as protein in the human body. Leftover amino acids——those not matched by corresponding amounts of the other essential amino acids in the right proportions, or simply not needed as protein——are broken down and used as fuel, as are carbohydrates (see below). Table 2 shows the NPUs of various common foods.

TABLE II

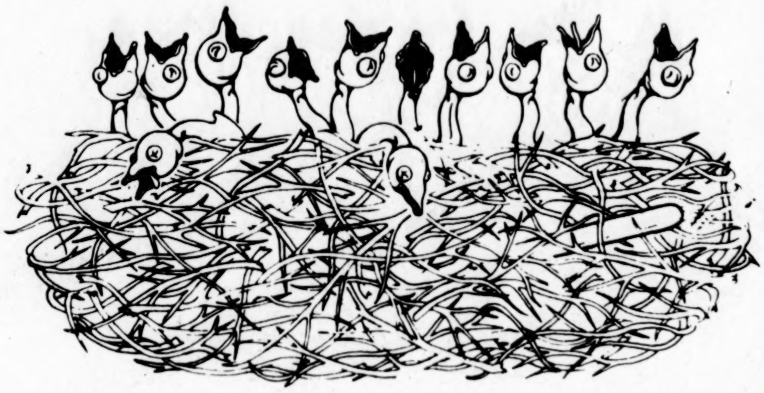
Net Protein Utilization of Common Foods

Food	NPU	Food	NPU
Eggs	94	Cashews	58
Milk	82	Lima beans	52

Fish	80	Corn	51
Cottage cheese	75	Walnuts	50
Cheese	70	Peas	47
Rice	70	Peanuts	43
Meat and poultry	67	Kidney beans	38
Soybeans	61	Lentils	30
Wheat	60		

Source: Lappé, **Diet for a Small Planet**

As you can see, the real protein value——NPU—— of meat is not especially high, and those of many plant foods are not far below. Compensating amino acids, however, is less complicated than it might seem, once the patterns are understood.[37] Many societies have



Here we have a crosshatch of food graphs from "Energy Use in the U.S. Food System" (John S. Steinhart and Carol E. Steinhart. **Science**, *19 April 74).* **Science** *is one of the magazines to read if you want to stay ahead of what's happening.*

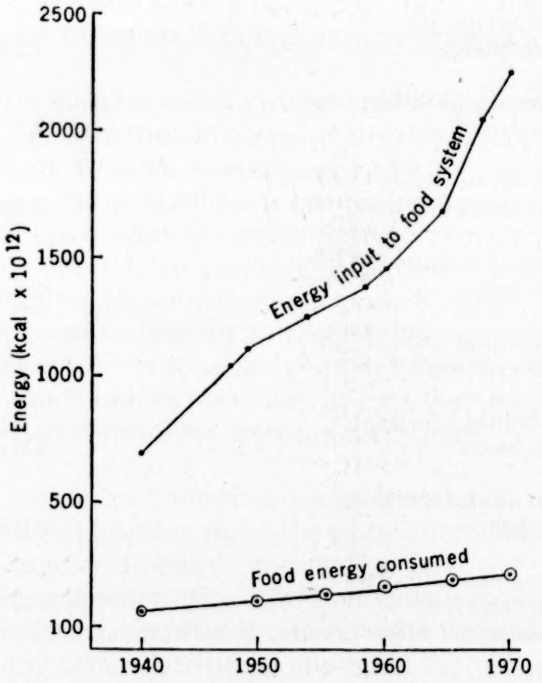


Fig. 1. Energy use in the food system, 1940 through 1970, compared to the caloric content of food consumed.

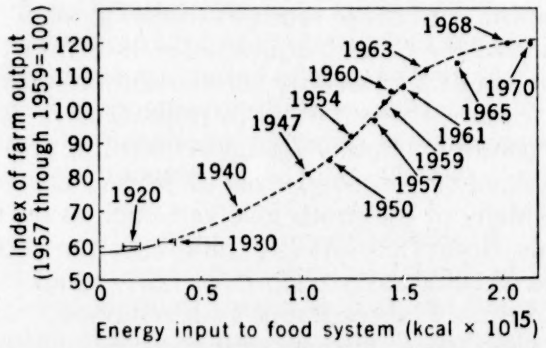


Fig. 2. Farm output as a function of energy input to the U.S. food system, 1920 through 1970.

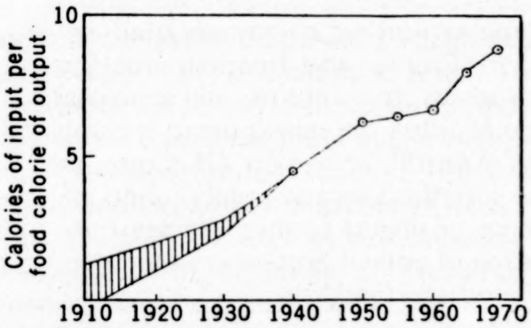


Fig. 4. Energy subsidy to the food system needed to obtain 1 food calorie.

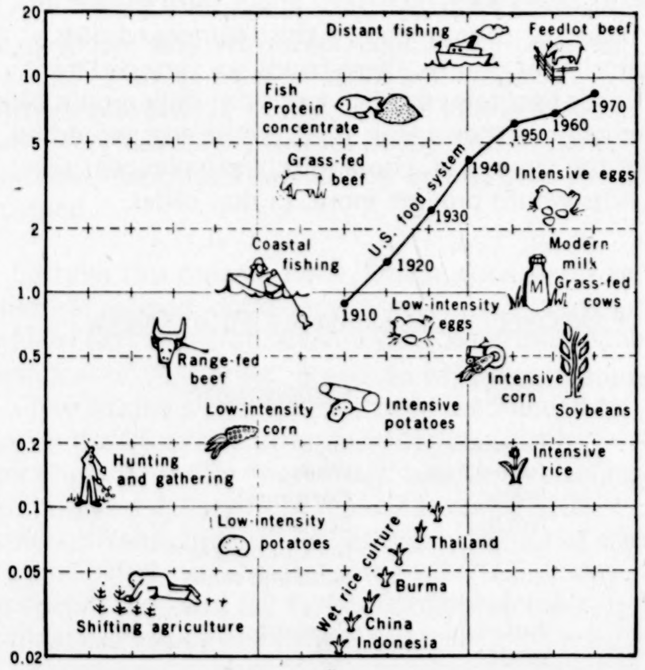


Fig. 5. Energy subsidies for various food crops. The energy history of the U.S. food system is shown for comparison. [Source of data: (*31*)]

practiced some form of protein compensation in their traditional dishes. One of the best patterns is to combine a pulse (pea or bean) with a grain. Thus long popular and familiar American meals include Boston baked beans with brown bread, or hominy grits and black-eyed peas. Another example is succotash (corn and lima beans), originally an Indian dish and now usually considered only a side-dish. Many other combinations are commonly used by other cultures: the Chinese and Japanese supplement rice with soy products, beansprouts, and snowpeas; in India and the Middle East, wheat bread is combined with chick peas or lentils; and so on. Of course, the people in those societies also add small mounts of fish, poultry, eggs, or yogurt to these staples, but their consumption of animal protein is very low by American or European standards.

High-quality animal protein or fully complemented plant protein is also known as "complete protein." To equal the complete protein of a nine-ounce steak, you need to eat ten ounces of fish, or six cups of milk, or seven eggs, or fifteen and a third ounces of dry beans, or fourteen and a third ounces of nuts. In calories, of course, these foods are very different. Per unit of protein, the fish and skim milk would give fewer calories than a lean steak, while eggs would be about the same, and whole milk, beans (except soy), and nuts would provide more, in that order.

TABLE III

Food Combinations to Improve Protein Quality

Food	Complements
Pulses (dried peas, beans, lentils)	Rice Wheat Corn meal Soybeans Milk or cheese Nuts and seeds
Nuts and seeds	Soybeans Pulses Milk or cheese Seafood Poultry Meat
Grains and cereals	Milk or cheese Yeast Pulses Wheat germ Eggs Poultry and meat
Lima beans, green peas, green vegetables	Sesame seed Brazil nuts Converted rice

Source: Lappé

TABLE IV

Protein Equivalent of Combinations to Steak

Combination in best proportions		Steak protein equivalent
2 cups rice + ¾ cups peas or beans	=	9.5 oz.
2½ cups rice + ¼ cup soybeans	=	9.25 oz.
1½ cups rice + 2 cups skim milk	=	7.75 oz.
1½ cups rice + 2½ oz. cheeze	=	7.75 oz.
4 slices whole wheat bread + 1 oz. cheese	=	2.5 oz.
1 cup whole wheat flour + 2 tbs nonfat dry milk	=	3 oz.
1½ cups whole wheat flour + ¼ cup beans	=	4.6 oz.
1 cup whole wheat flour + ¼ cup soy flour	=	4.1 oz.
6-7 cornmeal tortillas + ¼ cup beans	=	2.6 oz.
½ cup nonfat dry milk + 1 cup beans	=	8.33 oz.
1/3 cup peanut butter ½ cup skim milk + 6 slices whole wheat bread	=	10.1 oz.

Source: Lappé

Table 3 shows how the protein of different types of plant food can be raised to high-quality standards by combining with other foods in the same meal. Table 4 shows the protein equivalence in terms of steak that can be achieved by various combinations of plant foods with each other or milk. Clearly, with a little ingenuity, a family's protein consumption can be maintained or improved, even as grocery costs are reduced. Many of the foods involved, such as pulses, nuts, seeds, flour, rice, and dry milk, have the added advantage of being easy to store for fairly long periods of time. Frances Lappé's superb book, **Diet for a Small Planet**, is a must for those who wish to be prepared to maintain a healthy pattern of protein consumption as the food situation grows tighter. Her recipes can help you maintain a high protein diet at a minimum cost.

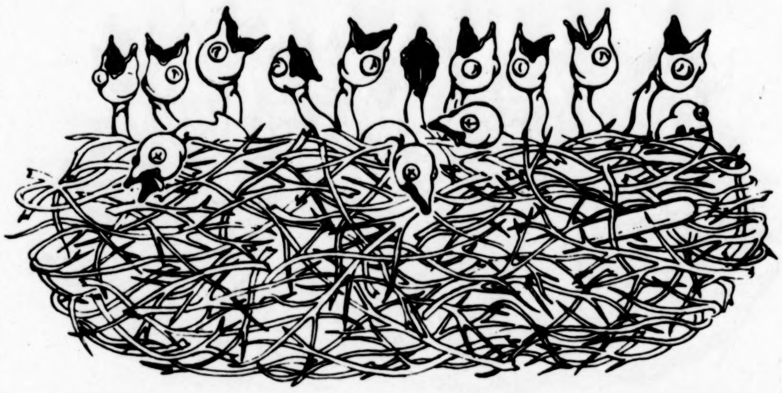
CARBOHYDRATES. Along with fats, carbohydrates (sugars and starches) principally provide fuel for your body. Carbohydrates are found in abundance in most plant foods, but among animal foods they are found in large quantities only in milk. Carbohydrates are one category of nutrients that are unlikely to be lacking in anyone's diet, except in cases of outright starvation. Americans, on the other hand, often consume too much carbohydrate through foods loaded with refined sugars and flours at the expense of other nutrients such as protein, vitamins, and minerals. Money spent on soft drinks, doughnuts, potato chips, candy, most cookies and cakes, and the like is, nutritionally, largely money down the drain. If your food budget is limited, you should avoid such junk foods like the plague.

Sugar and starch are both carbohydrates. Sugar is, of course, available in more or less pure form in sugar and syrups. It is also found in fruits, berries, milk, and foods made from them. Starch is most abundant in such vegetables as potatoes and yams and in grains and bakery products. There is also quite a bit of starch in pulses, nuts, and seeds.

FATS. Besides being a major source of energy, used directly or stored, some of the constitutents of fat––fatty acids––are essential for metabolic processes. Three fatty acids cannot be manufactured in the human body and must be provided in the diet. These fatty acids are present in vegetable oils––safflower, soy, corn, cottonseed, etc.–– but are poorly provided by animal fats. Americans consume a high proportion of their calories as fats. Yet so much of this is animal fat that they may still be deficient in the essential fatty acids.

An even more serious consequence of a diet high in animal fat appears to be the association with cardiovascular diseases––heart disease, stroke, thromboembolism, high blood pressure, etc. Although the relationship is clearly not a simple one and many other nutritional and other factors are certainly involved, it seems that eating high proportions of cholesterol and the saturated fats found in red meat, milk, eggs, and cocoanut oil may encourage the development of cardiovascular disease. The fats in fish, poultry, some nuts, and olive oil are less saturated and apparently have no effect on levels of fat or cholesterol in the blood (high levels are associated with cardiovascular disease). The unsaturated fats––vegetable oils–– appear to be beneficial if vitamin and mineral intake is also adequate.[38]

Here is yet another argument in favor of reducing your consumption of beef, lamb and pork––especially of the fattier cuts. At the same time, obtaining vegetable oil daily is essential, preferably in salad dressings. Oils can and should also be used in cooking, but some of their value may be lost if they are heated for long. For that reason, cooking oil or fat should never be re-used. Unsaturated vegetable oils and their valuable constituents are also available in whole grain, nuts, and seeds. Hydrogenated oils (margarine, hydrogenated peanut butter) should be avoided.

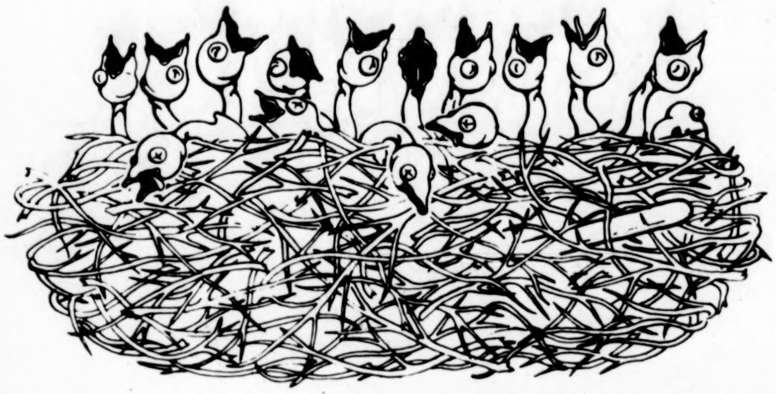


VITAMINS. There are two basic kinds of vitamins: water soluble ones and fat soluble ones. The water soluble vitamins include vitamin C and the B-complex of some fifteen vitamins, which are relatively fragile and may be lost or destroyed through exposure to heat, evaporation, or soaking in water. These vitamins also cannot be stored in the body for more than a few days. To preserve these fragile vitamins, fruits and vegetables should be cooked––if at all––only briefly and in minimal amounts of water. The cooking method for vegetables that best preserves vitamins is the quick stir-fry technique of oriental cooks, a method that also conserves energy.

Vitamin C is found mostly in fruits, especially citrus fruits, berries, and melons, and in tomatoes and green vegetables, particularly peppers. The entire B-complex is found in liver, yeast, and whole grains. Some of the B vitamins are also found in other organ meats, green leafy vegetables, eggs, milk, molasses, and nuts. Because these vitamins act in concert with one another, it is important to obtain all of them every day in the correct proportions. If one is lacking, the others may not be usable, even though provided.

Early in this century when wheat, corn, and rice were first refined, deficiency diseases such as pellagra and beri-beri appeared. Even today, Americans eat a great deal of "enriched" bread, to which small amounts of a few vitamins and minerals have been added to replace the 25 or so nutrients milled out. Such "enrichment" is like "enriching" a bank by stealing ten thousand dollars from it and returning $100! Although "enrichment" makes the incidence of these extreme deficiency diseases rare in the U.S., many Americans may still fall far short of obtaining optimal quantities of all the B vitamins.

The fat soluble vitamins––vitamins A, D, E, and K––are less likely to be destroyed or lost in cooking or storage than are water soluble ones. They are also stored well in the body. Because they are stored even in excess amounts, not excreted as are the water soluble vitamins, vitamins A and D have been shown



to be toxic in very high dosages. No toxicity has been demonstrated for vitamins E and K, however. All these vitamins must be consumed with fat or oil to ensure their absorption.

Vitamin A is found in eggs, milk and milkfat products such as butter, cheeses, sour cream and ice cream, and in green and yellow vegetables. Vitamin D is the sunshine vitamin. If you live in a cold climate where your skin is not exposed to direct sunlight during long periods, you and your children should be sure to eat foods fortified with vitamin D or take cod liver oil. Vitamin E is found in vegetable oils, but it can be destroyed by overrefining or overheating. Vitamin K is normally manufactured by intestinal bacteria and is also widely available in foods; deficiencies therefore are very rare.

In general, the more refined and/or processed a food is, the more vitamins have been lost along the way. Thus, to be sure that you and your family have all the vitamins you need, try to use fresh foods as much as possible and minimize your use of refined and processed foods. When processed foods must be resorted to, remember that fresh-frozen, uncooked foods have probably suffered the least abuse. Precooked combination frozen foods, canned combinations, and some dehydrated mixtures have probably lost the most food value. Avoid packages with large amounts of preservatives. Not only do preservatives sometimes destroy nutrients, their safety is in many cases far from well-established. This is particularly true for nitrates and nitrites, which are commonly used in bacon, sausages, ham, and hot dogs. Moreover, any food that needs a lot of preservatives to maintain a semblance of freshness has probably already lost much of its nutritional value. Similar caveats apply to foods loaded with colorings, emulsifiers, artificial flavorings, and similar chemicals. The "tests" claimed to protect you from long-term consequences of consuming these materials are hopelessly inadequate, even when carried out honestly——and they sometimes haven't been.[39]

MINERALS. Some seventeen minerals are essential nutrients. Some of them are often enough lacking even in the varied diets of Americans to warrant discussion.

Calcium is abundantly found only in milk and milk products, less abundantly provided in green leafy vegetables and in hard water. Since it is needed in large amounts by growing children and mothers and in smaller amounts by all adults, the consequences of not consuming milk (or an adequate substitute like yogurt or cheese) are serious.

Iron deficiency is distressingly common among Americans, especially teenage girls, whose needs for iron are high. Iron is readily available, however, especially in liver and other variety meats, beans, molasses, oysters, apricots, and green leafy vegetables.

Iodine is often lacking in the diets of people who live far inland. It can be easily obtained in iodized salt and is also available in seafood of all kinds.

Most other minerals are unlikely to be lacking in the diet of anyone eating reasonably well-balanced meals. To be sure, just as with vitamins, it is wise to avoid overprocessed and overrefined foods as a general principle. Unlike vitamins, minerals are fortunately not lost or destroyed by cooking or storage, although they may (along with vitamins) be poured down the drain with cooking water.

The field of nutrition in recent years has been fraught with controversy. Root causes of the controversy are the incompleteness of nutritional knowledge and the prevailing ignorance of both the public at large and the medical profession of what is known about nutrition. Thus large segments of the public, rightly believing that what they eat has a direct influence on their health, are ripe to accept fraudulent, misleading, or unsubstantiated information on nutrition. The tragedy is that such misinformation comes to them both from the conservative food industry and the trained nutritionists it employs and from far-out, untrained health-food nuts.

When supposedly respectable professionals defend the commercial cereal industry by saying that cornflakes with milk is a very nutritious dish (virtually anything with milk is a nutritious dish), it is no wonder the public is misled. Those who have long functioned as paid consultants to the food industry tend to have a vested interest in it——"experts" presented by the food industry tend to be of the same ilk as "experts" who testify to the great safety of nuclear reactors for power companies. A few years ago, Dr. Roger J. Williams[40] presented his findings that young rats quickly died on a diet of commercially "enriched" white bread, while they remained healthy indefinitely on bread enriched with all known vitamins and minerals. Far from expressing interest in similarly enriching their own products, the food industry attacked Williams on the grounds that rat nutrition is different from human nutrition and that people don't subsist entirely on bread, anyway. With some exceptions, food processors are much more interested in the health of their balance-sheets than that of their customers.

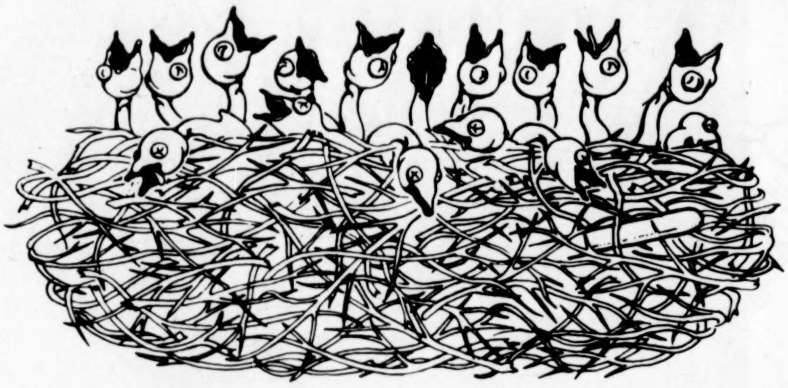
The other extreme of the controversy is equally appalling. Here one finds similar exploitation of consumers and sometimes semi-religious zeal in promoting "health" diets that are downright dangerous. Perhaps the most extreme case of the latter is the Zen macro-biotic diet favored in recent years by some hippies.[41] The advanced level of the diet is inadequate for adults; for infants and children it is a disaster. By late 1972, at least one death was attributed to the diet, and a great many cases of advanced malnutrition had been reported. The parents of the malnourished children were not even feeding them milk! Even with dietary improvement, these children may never completely recover from their early deprivation. The tragedy is that it is preventable. No one with even a rudimentary understanding of nutrition would accept the diet in the first place, let alone inflict it on a baby.

Less obviously harmful are the many food faddists who mislead the public into thinking certain foods or vitamins can cure diseases or restore their youthful vigor. Many of these people profit from the gullibility of the public. Thousands of people, many of whom can ill afford it, waste money needlessly on special vitamin preparations, or overpriced health foods. Worse, others try to cure medical problems this way instead of consulting a physician. This is not to say that there are not many honest and reasonably well-informed health-food store operators who are concerned about health and are trying to provide a useful service.

The problem is to sort out the honest health food dealers from the rotten apples. For this, the only defense is knowledge, plus a healthy skepticism for anything that sounds like a far-fetched claim. There is a lot that good nutrition can do for you, but the benefit lies more in the area of prevention than cure (except, of course, for deficiency diseases). All the protein, vitamins, and minerals in the world won't cure cancer——or bunions. But improving your diet might very well make you feel more energetic and give you extra stamina and resistance to disease. Above all, some basic knowledge of nutrition will aid you greatly in optimizing your diet during times of food shortage.

HOW IS YOUR SELF-SUFFICIENCY?

Suppose all efforts to help the United States cope with a world of scarcity prove futile, and severe food shortages, along with other disruptions, develop. To prepare for this contingency, not all of your efforts at changing the future should be invested in social and political action; you should also be taking steps beforehand to reduce your dependence on the services provided by our complex society. One side of the coin of self-sufficiency is to be prepared for the unexpected. Americans tend not to believe in disasters, natural or otherwise. Consequently, they are forever being caught by surprise——and usually quite unprepared.

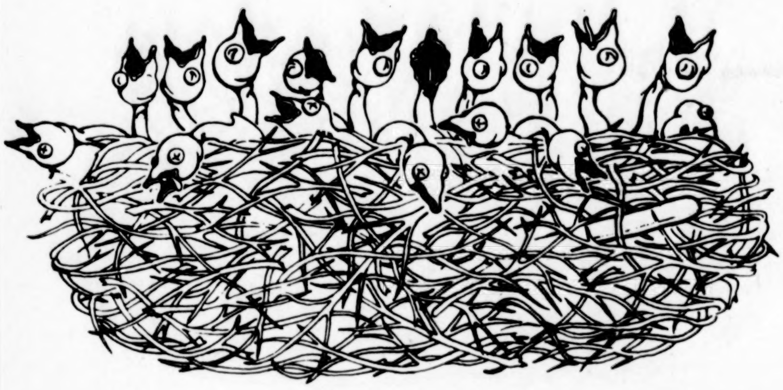


Suppose your family was stricken by some event that isolated you in your home for a period of days without gas or electricity. The agent could be a hurricane, a disastrous flood, a severe earthquake, a huge blizzard, or any number of human-induced problems. How would you get along? Would you be out of food the next day? Would you be freezing in winter, without light or any way to cook food? If water pipes were broken or the water was contaminated, would you have nothing to drink? Answering such questions can help you plan for self-sufficiency in the event of a natural disaster, severe shortages in food or essential goods, or serious social breakdown.

Obviously, one key to self-sufficiency is to have supplies on hand of everything you need to survive. There is no need to engage in panic buying whenever scarcity is forecast. If you hear that a bread shortage is coming next week, we don't recommend rushing to the store to buy ten loaves. We hope, rather, that you already have enough flour, yeast, and powdered milk in your pantry to make your own bread, if necessary. Remember the great toilet paper panic?

If you have any storage facilities at all——a reasonably dry basement is ideal, but even a small closet can hold a surprising amount—— you can gradually accumulate and put by enough food and supplies to tide your family over for a period of time during an emergency or to compensate for shortages. The Mormons as a regular practice keep enough supplies on hand for a year. This may not be practical for you, but enough food and water to survive for two to four weeks, plus emergency light and heat sources, are within the reach of all but the poorest. Moreover, buying ahead is a hedge against inflation.

Food stores can be built up gradually by buying perhaps ten or twenty percent more than you need each time you visit the supermarket. If you plan carefully, most of the food can be used up and replaced as part of your regular consumption, thus avoiding overlong storage. Canned and even dehydrated foods deteriorate over time, so it is wise to date everything, even cans, as you buy. As much as possible, you should try to store foods that your family now likes and eats often. If they don't like a food now, they won't like it any better in an emergency, even if nothing else is available.



Buying in bulk, of course, will save you money, time, and storage space. This may seem inconsistent with the principle of accumulating gradually, but it really isn't. You can buy a couple of cases of tuna one week and chicken the next, for instance. Case discounts are widely available on canned and some other goods, and those with the house label are usually cheaper, though equally as good as the advertised brands. (Very often some cans from the same batch in a cannery are given house labels, others the labels of more expensive, nationally advertized brands. In few areas are consumers more systematically cheated than in purchasing food.) It's a good idea to invest in some storage containers, such as bins, cannisters, or glass apothecary jars, to hold flour, nuts, seeds, rice, dry milk, etc., especially if you live in a humid climate.

Some useful items may not be available at your supermarket. Freeze-dried foods of the types used for hiking trips, for instance, are available at sporting goods shops and some mail-order outfits. These foods are relatively expensive, but because they keep well (freeze-dried fruits, especially, last longer with less vitamin loss than canned fruits) and occupy so little storage space, they may be worth it. Some other items––non-instant powdered milk, soy flour, and yogurt culture, for example––are found in health food stores.

Concentrate on foods that require no elaborate preparation. It's all very well to have ingredients to make bread on hand. But if there is no power, there is no way to bake it. As an alternative, learn how to make tortillas or unleavened Middle-eastern bread. All you need is a fire and a skillet. If you've had an extensive camp cooking experience, you're way ahead of the game.

If you are forced by circumstances to subsist on stored food for a long time, you should give thought to extra nutritional insurance for your family to compensate for the inevitable losses. First in this line come vitamin supplements. Like foods, these deteriorate with time, so ideally they should be used and replaced regularly. If the Food and Drug Administration goes through with its present plans, vitamins will soon be available only in relatively low concentrations, except by prescription. Therefore you may wish to store ahead just to have them on hand. There are good vitamin mixtures, however, and poor ones. Generally speaking, though not always, the cheaper ones are not very good. They contain only some of the more well-known (by the public) vitamins and minerals, which are cheap to produce, and omit or skimp on the others. Some mixtures are better balanced.

Vitamin C can and perhaps ought to be purchased separately and stored as extra insurance against cold and other infections. It keeps well as pills if protected from moisture and light; but in stored foods and in cooking, it is one of the first vitamins to be lost. In a pinch, vitamin C can also be dissolved and used as a lemon flavoring to perk up bland stored food.

There is nothing wrong with keeping a stock of food in your freezing compartment or freezer. This may prove to be a hedge against rising prices and short-term shortages. But don't count on it to tide you over an emergency in which power is interrupted. You may instead be faced with the problem of cooking and eating a large amount of food before it spoils. For real emergency supplies, depend on canned and dried food.

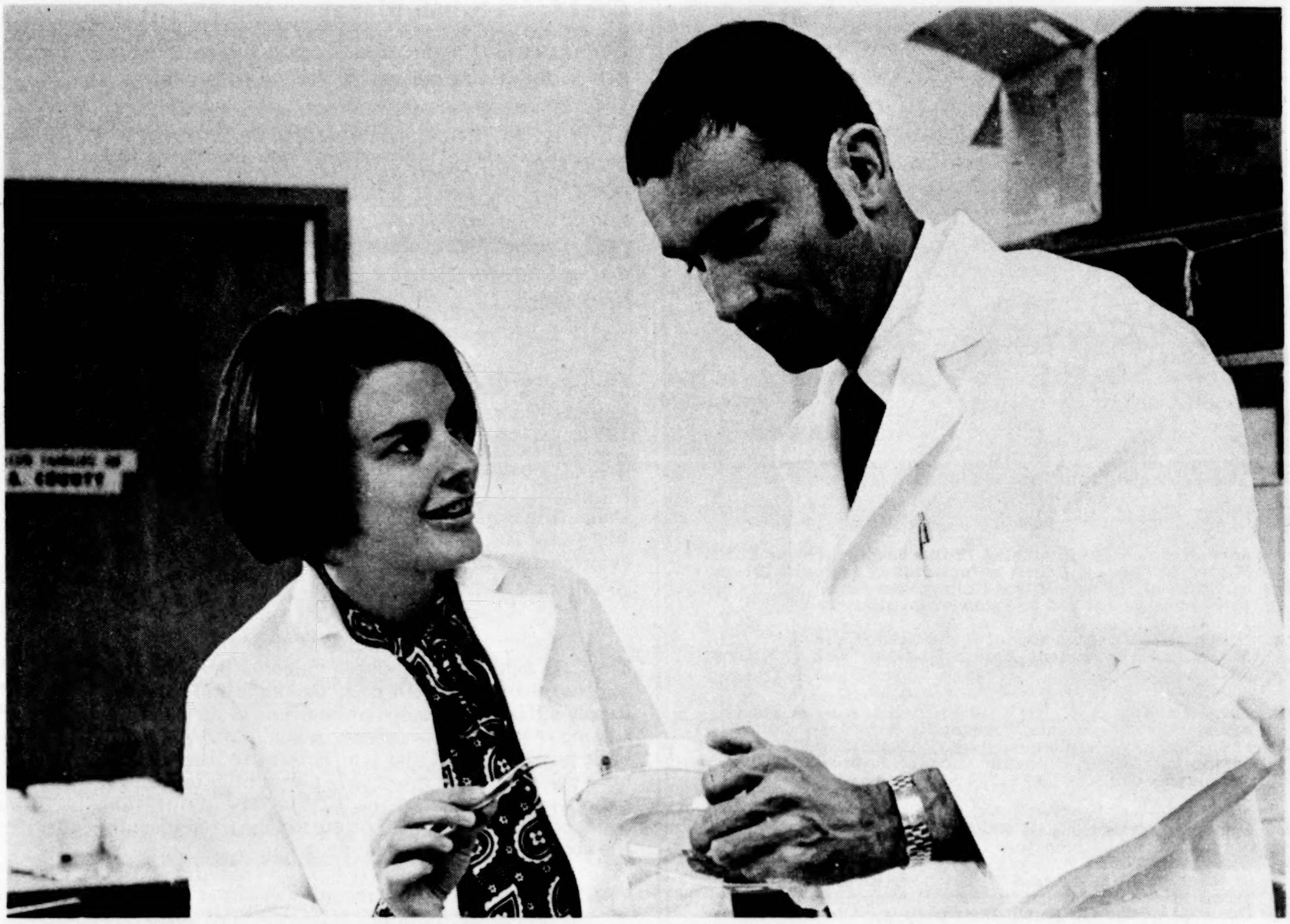
For what length of time you should prepare to be self-sufficient is up to you. The time will, of course, be dictated by such factors as your lifestyle, where you live, the storage capacity of your home, and what you can afford. Arranging to be independent for a week is relatively easy; storing up supplies for a year is much harder. You will have to decide for yourself what sort of emergencies you are most likely to have to face and make your plans accordingly. Planning for self-sufficiency may seem in some ways disloyal to the rest of society. But in times of serious trouble, how society survives will in large measure depend on how well its individual people can take care of themselves.

FOOTNOTES

1. **P. R. Ehrlich and A. H. Ehrlich, Population, Resources, Environment, 2nd edition, (San Francisco: W.H. Freeman and Co., 1972).**

2. **San Francisco Chronicle, May 29, 1973, p. 26.**

3. **Actual figures on deaths from starvation are impossible to find. National mortality statistics, where kept, do not include a category "death from starvation." Indeed, people do not usually die of starvation, but of some disease such as pneumonia, measles, or diarrhea which would not have been lethal for a well-fed individual. There are some 60 million deaths annually worldwide, and French agronomists R. Dumont and B. Rosier have estimated that between 10 and 20 million of them are the result of starvation (The Hungry Future, Praeger, New York, 1969). Alan Berg, (Nutrition, Development and Population Growth, Population Bulletin, vol. 29, No. 1, p. 11, 1973) estimates that some 15 million children die annually of malnutrition and related diseases. In many areas of Latin America, for instance, for well over half of all deaths of children under five years of age, malnutrition is either the primary cause or an associated cause (Pan American Health Organization, "Inter-American Investigation of Mortality in Childhood," First year of investigation, Provisional Report, Washington 1971). The impact of disease on malnourished children in UDCs can be seen in comparisons of death rates in Guatamalan children with those in the United States. They are roughly 500 times as high for diarrheal diseases and 1000 times higher for measles (Berg, loc. cit.).**



"What's that, Paul?" "That's a Petri dish, Anne." A 1970 publicity photo that does some justice to Anne's looks and none to her abundant intelligence and independence. The Ehrlichs never wear lab coats. They work in the field and the Field.

4. For further details see P.R. Ehrlich, A.H. Ehrlich, and J.P. Holdren, Human Ecology: Problems and Solutions, (San Francisco: W.H. Freeman and Co., 1973). This source provides an overview of the problems of population, resources, and environment.

5. Figures here and in the previous paragraph are based on Lester R. Brown, "Population and affluence: growing pressures on world food resources," **Population Bulletin.** vol. 29, no. 2, 1973.

6. Alan Berg, op. cit.

7. **New York Times,** November 15, 1973.

8. **New York Times,** November 18, 1973.

9. **New York Times,** November 18, 1973, "Ethiopia says famine was covered up,".

10. Perhaps the most prominent among predictors of disastrous famines were William and Paul Paddock, whose book, **Famine 1975!** (Little Brown and Co., Boston, 1967) was ridiculed by proponents of the green revolution.

11. **Time,** November 8, 1948.

12. Reid A. Bryson, 1973, "Climatic modification by air pollution, II," **Report 9,** University of Wisconsin Institute for Environmental Studies. Reprinted in **The Ecologist,** October, 1973, under the title, "Drought in Sahelia: who or what is to blame?".

13. This is especially true in the area of crop protection where the entire approach has been incompetent. See Ehrlich, Ehrlich, and Holdren, op. cit., pp. 167-170; P.M. Dolinger, P.R. Ehrlich, W.L. Fitch, and D.E. Breedlove, "Alkaloid and predation patterns in Colorado lupine populations," **Oecologia** vol. 13, 1973, pp. 191-204.

14. Ehrlich, Ehrlich, and Holdren, op. cit., pp. 166-170; P.R. Ehrlich and P. Raven, "Butterflies and plants: a study in coevolution," **Evolution,** vol 18, 1965, pp. 586-608.

15. **San Francisco Chronicle,** December 16, 1973.

16. **U.N. Statistical Yearbook, 1972; Foreign Agriculture,** USDA, February 5, 1973; and **World Agriculture Production and Trade,** USDA, March 1973.

17. David Weisbrod, 1973, "What happens when America runs out of leftovers," **Washington Monthly,** July-August, pp. 66-71.

18. Lester Brown, "The need for a food reserve," **Wall Street Journal,** October 10, 1973.

19. Ehrlich and Ehrlich, op. cit.

20. Joseph Albright, "Some deal," **New York Times Magazine,** November 25, 1973.

21. Data for this section are taken primarily from four sources: The Federation of American Scientists' Special Newsletter on World Food Production, Sept. 1973; Lester R. Brown, "Population and Affluence: Growing Pressures on World Food Resources," **Population Bulletin,** Population Reference Bureau, Vol. 29, No. 2, 1973; Frances Moore Lappé, **Diet for a Small Planet,** Ballantine Books, 1971; and The President's Science and Advisory Committee Report on the World Food Problem, Vol. II, 1967 (U.S. Government Printing Office, Washington, D.C.).

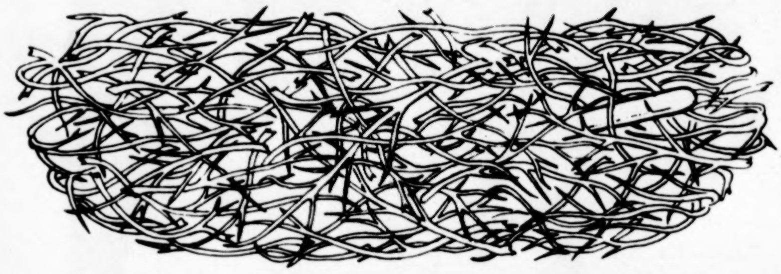
22. N.W. Pirie, **Food Resources, Conventional and Novel** (Baltimore: Penguin Books, 1969).

23. President's Science Advisory Committee, op. cit.

24. Lappé, op. cit., quoting "Major Uses of Land and Water in the U.S., Summary for 1959," **Agricultural Economic Report No. 13,** Farm Economics Division, Economic Research Service, USDA, p. 2.

25. Eric Hirst, 1973, "Living off the fuels of the land," **Natural History,** December, pp. 21-22.

26. David Pimentel, et al., 1973, "Food production and the energy crisis," **Science** 182: 443-449, November 2.



27. Malcolm Slesser, 1973, "How many can we feed?" The Ecologist, June, pp. 216-220.

28. Pimentel et al., op. cit.

29. John Kenneth Galbraith, A China Passage, (New York: Signet, 1973). Galbraith unfortunately thought it quaint that "superstitious Chinese peasants" still prefer natural wastes to modern fertilizers.

30. "What Does it Take to Solve the Sludge Crisis?" Rodale's Environment Action Bulletin, Vol. 5, No. 10. March 9, 1974.

31. Pimentel et al., op. cit.; Paul Ehrlich and Peter Raven, "Butterflies and Plants," Scientific American, June 1967; and P.M. Dolinger, et al., "Alkaloid and Predation Patterns in Colorado Lupine Populations," Oecologia, Vol. 13, 1973.

32. One example is the Self Reliance Institute, a new organization headquartered in Palo Alto, California (Palo Alto Times, March 29, 1974). The Institute plans to teach many skills that would be helpful for gaining independence from "the system." According to Paul Growald of the Institute, their program includes systematic, proven methods for food production, preservation, and storage; home heating and maintenance: medical self reliance; and economic survival. The Institute's first course teaches techniques for growing as many vegetables and small animals (particularly rabbits) as possible with the limits of time, space, and light available to most city and suburban people. The teachers are Dr. William Olkowski of the University of California Agricultural Experiment Station and his wife Helga. The Institute's goal is to return self-reliance to North American lifestyles and to reduce dependence on large institutions. We encourage you to start your own schools for self-reliance or to organize your friends and learn practical survival skills on your own. If you are interested, you can write to the Self-Reliance Institute, P.O. Box 11176, Palo Alto, CA 94306 (include a stamped, self-addressed envelope).

33. Paul Growald of the Self Reliance Institute, personal communication.

34. U.S. News and World Report, January 19, 1970, pp. 24-26.

35. A relatively detailed analysis of what various nutrients do for you can be found in Ehrlich and Ehrlich, op. cit., Appendix 3, pp. 464-469. A simplified method of measuring food values is described in Michael Jacobson, Nutrition Scoreboard: Your Guide to Better Eating, Center for Science in the Public Interest (1779 Church Street NW, Washington D.C. 20036), 1973.

36. Roger J. Williams, 1973. Nutrition Against Disease, Bantam.

37. For detailed analysis, see Lappé, op.cit. This superb book also includes recipes for using high-quality protein combinations.

38. For an enlightening discussion of the complex nutritional factors in cardiovascular disease as far as they are known, see Williams, op. cit.

39. James S. Turner, The Chemical Feast (New York: Grossman Publishers, 1970). The information on cheating FDA scientists appeared in Science early in 1974.

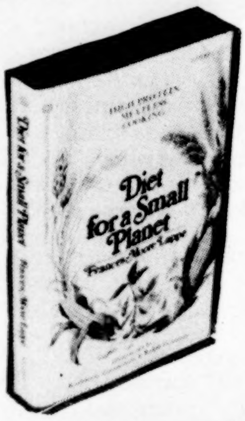
40. Williams, op. cit.

41. Newsweek, September 18, 1972, p. 71.

Diet for a Small Planet

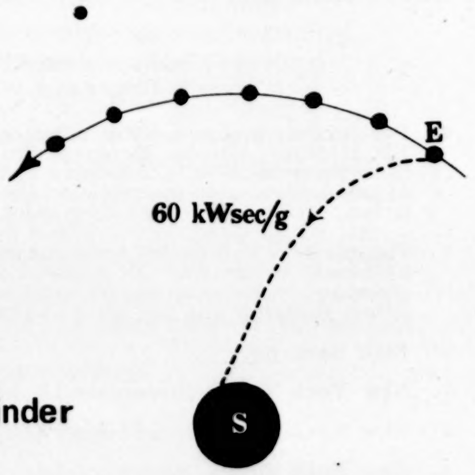
Good protein is necessary for good nutrition, but meat is not necessary for good protein. Vegetables in sensible combination with each other and with occasional poultry and dairy products will do splendidly. Ms. Lappé spells out the most advantageous combinations. The saving in personal cost is large, in planetary cost, incalculable. Her recipes are okay, but not as excellent as the writing and nutritional principles.

—SB



Diet for a Small Planet
Frances Moore Lappe
1971; 301pp.
$1.25 postpaid
from:
Ballantine Books, Inc.
457 Hahn Rd.
Westminster, MD 21157
or Whole Earth Truck Store

Thus, we can safely conclude that a varied plant protein diet supplemented with dairy products and eggs can supply sufficient protein while at the same time surpassing meat in the provision of some of the other basic nutrients. All this is not meant to belittle the nutritional value of meat. My aim is only to provide a more realistic view of the wide variety of nutritious foods sources to replace the culturally fixed idea of the absolute supremacy of meat.



Solar Garbage Grinder

Here are three figures:

1. The amount of energy extracted from burning one gram of carbon:
   CarbonBurning: 34 kWsex/gram
2. The amount of energy extracted from one gram of Uranium in a fission reactor:
   Uranium Fission: $75 \cdot 10^6$ kWsex/gram
3. The amount of energy necessary to lift one gram of matter out of the earth's gravitational pull and to inject it into an orbit that intercepts the sun:
   Solar Injection: 60 kWsex/gram

CONSEQUENCES

While twice the energy obtained from burning any amount of coal is necessary to send it to the sun, only one millionth of the energy obtained from burning a nuclear fuel is necessary to dump the radio-active waste into the sun whose high temperature ($>10^6$ Degrees Kelvin) reduces matter to its primordial form, the elementary particles.

[Sent by Heinz Von Foerster]

Reaching the Limit:
$P = f(N) \neq f(C, L)$

Jay W. Forrester, whose computer-based scenarios of world growth sliding into disaster startled readers of **World Dynamics** two years ago (see "Counterintuitive Behavior of Social Systems," January, 1971, pp. 52-68) is himself startled by the speed with which his forecasts are being fulfilled. The changes predicted by his model are coming "tremendously faster than I would have imagined." he told a workshop on productivity at M.I.T. early this winter.

But in no other respects are Professor Forrester's predictions wide of the mark, he says. The "energy crisis" has thrust upon Americans the fundamental characteristic of exponential growth in very real terms: in every unit of time, as much more is added as has been in all of recorded history prior to that time. Suddenly one more doubling stresses the system far too far, and "the entire process seems to have exploded."

That is exactly where the U.S. now finds itself in the matter of energy, thinks Professor Forrester, who is now working on a model of national growth and resources in the M.I.T. Sloan School of Management.

Our symptoms of stress are those which Professor Forrester proposed: we are entering an era of transition where social and technological problems will be increasingly severe, their solutions ever more elusive; "it is no accident that we seem to have pressures coming from all sides at once."

Much as predicted, our response to energy shortage is a desperate search for stop-gap "fixes"— for more energy with which to maintain traditional modes and standards and eventually to make even more disastrous our controntation with the reality of physical limits.

We have assumed in the past that we could view productivity as a function of capital and labor:

$$P = f(C,L)$$

and that, in this function, maximizing the ratio of capital to labor, C/L, would assure us of a maximized standard of living. Now we are suddenly confronted with the fact that productivity is more fundamentally a function of nature:

$$P = f(N),$$

that the ratio C/L is a social issue which deals with how a finite total of capital and labor should be distributed.

How does the "energy crisis" enter this formula? Most of our "solutions," which involve exploiting new energy sources, have within them massive demands for capital (the capital investment per unit of energy output from oil shale for example, will be five times that from petroleum). Investing this much capital while maintaining our standard of living in other respects may be beyond our capacities, thinks Professor Forrester. "Can any society in the world today claim the strength for such self-denial?"

—John I. Mattil

(in **Technology Review**, Feb., 1974. $10/yr - 8 issures, from Room E19-430, MIT, Cambridge, MA 02139).

The Market is Polar Bearish

You get stagflation (inflation + recession together) in the transition from demand basis economics to supply basis economics. Enter an Ice Age. Wouldn't you get the same? More work for less goods.

—Jim Harding
San Francisco

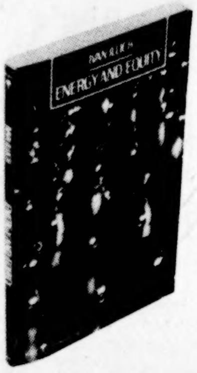
Energy and Equity

One hell of a book. Half the reason I like it is format. Here are author and publisher working to extend developing ideas to critics. The address of the author is included, invitation to criticize is extended, and opportunity for corrections is allowed by the promise of future editions. The book is 84 pages— pamphlet length— concisely phrased, with a spine so you can read its title on the bookshelf. Open right hand margins might make it marginally better.

Other half the reason I like it: Whenever a society runs its vehicles faster than 15 miles an hour, the distribution of power gets loopy, and the culture goes BANANAS.

—Jim Harding

Energy and Equity
Ivan Illich
1974; 84pp.
$0.95 postpaid
from:
Harper & Row General Books
Keystone Industrial Park
Scranton, PA 18512
or Whole Earth Truck Store



Beyond a certain speed, motorized vehicles create new distances that they alone can shrink; they create them for all, but they can shrink them only for a few.

●

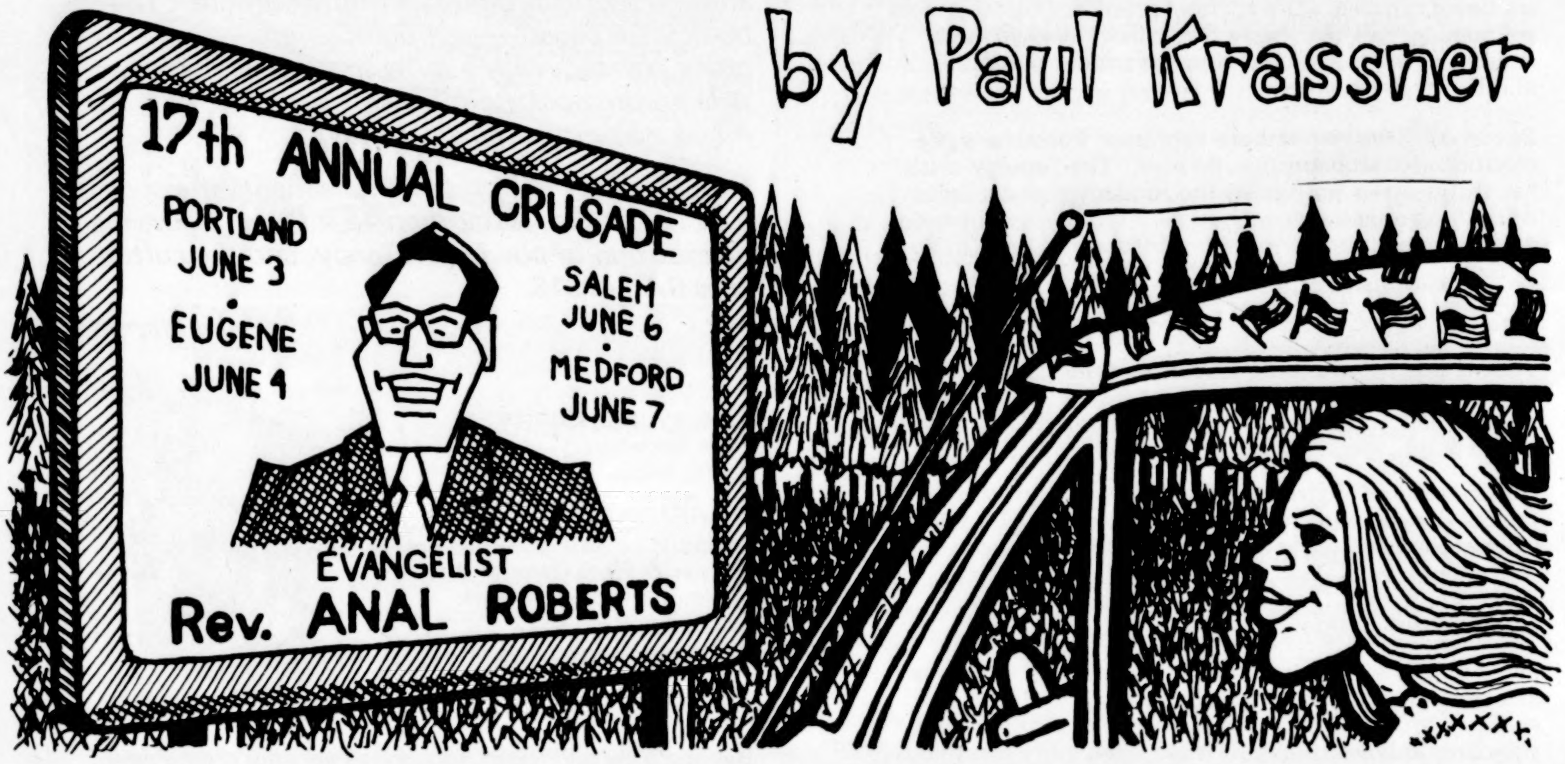
It has recently become fashionable to insist on an impending energy crisis. This euphemistic term conceals a contradiction and consecrates an illusion. It masks the contradiction implicit in the joint pursuit of equity and industrial growth. It safeguards the illusion that machine power can indefinitely take the place of manpower. To face this contradiction and betray this illusion, it is urgent to clarify the reality that the language of crisis obscures: high quanta of energy degrade social relations just as inevitably as they destroy the physical milieu.

●

The typical American male devotes more than 1,600 hours a year to his car. He sits in it while it goes and while it stands idling. He parks it and searches for it. He earns the money to put down on it and to meet the monthly instalments. He works to pay for petrol, tolls, insurance, taxes and tickets. He spends four of his sixteen waking hours on the road or gathering his resources for it. And this figure does not take into account the time consumed by other activities dictated by transport: time spent in hospitals, traffic courts and garages; time spent watching automobile commercials or attending consumer education meetings to improve the quality of the next buy. The model American puts in 1,600 hours to get 7,500 miles: less than five miles per hour. In countries deprived of a transportation industry, people manage to do the same, walking wherever they want to go, and they allocate only three to eight per cent of their society's time budget to traffic instead of 28 per cent. What distinguishes the traffic in rich countries from the traffic in poor countries is not more mileage per hour of life-time for the majority, but more hours of compulsory consumption of high doses of energy, packaged and unequally distributed by the transportation industry.

TONGUE FU

by Paul Krassner



This is part of Part 2 of Krassner's satire on the TV series "Kung Fu." The Spring '74 **CoEvolution Quarterly** *carried Part 1.*

Our story began with Tongue Fu walking the streets of Manhattan in quest of his half-sister ("Pregnant and unmarried, in that order" says his Mother) whom he has never met. On this mission to find his sister, now a blissed-out guru's disciple, he meets Captain Mediafreak, a one-armed torso (no legs either) with an enviable adrenalin level. Tongue Fu is somewhat of an anomaly himself; his particular aberration is an enormously long tongue——the budding result of atomic fallout. ("Wow," says Captain Mediafreak. "I'll bet you can give yourself great head.") Incarcerated——tongue, holy hard-on and all——as a material witness to the display of an obscene film, Tongue Fu makes his one alloted phone call——to an unkown number on a calling card the guilty theatre manager gives him. This results in Tongue Fu's first blind date, and his memorable come-on to Chocolate Graham, "Would you like a hash oil cookie?" Our story faded last time as Tongue Fu goes down on Chocolate Graham while she goes up on him. . . but the real show is the one Captain Mediafreak watches nearby: the Walton family finding joy in the depression.

The complete Tongue Fu, *including its conclusion, Part 3, will appear in the* Whole Earth Epilog. *Paul Krassner is the editor of* The Realist.

—PC

Illustrations by Steamboat

PART TWO

7

INTRODUCING ROSEBUD ZWALYIMEH

A Volkswagen gathering reduced speed on an Oregon country highway is entirely pasted over with little American flag decals. Only the windows, headlights, brake signals, license plates and door handles have been left uncovered. Also, the radio antenna is still bare, the better to pull in the sound waves of Van Morrison singing *Into the Mystic*.

The driver of this starred-and-striped vehicle is Rosebud Zwalyimeh. Long auburn hair parted in the middle shelters a face enhanced by an expression of amused awareness that its beauty is deemed so by Caucasian counter-cultural conditioning. She is wearing a see-through Mexican blouse and jeans embroidered with imaginary tropical fish.

Occasionally she passes a roadside billboard. One announces a series of evangelical revival meetings in the area to be conducted by faith-healer Anal Roberts. Another features Smokey the Bear endorsing the Air Force Reserves. Another simply says, *Compliments of a Friend*.

Eventually, Rosebud picks up a hitchhiker— a uniformed highway patrol person.

"Don't you know it's against the law," he asks, 'to stop on a public freeway like that?"

"But, officer— you were thumbing a ride."

"Well, I had to. Somebody stole my motorcycle."

"Are you gonna give me a ticket?"

"Depends." He removes his helmet. "What is it with all those decals? You making fun of the American flag?"

"I thought that's supposed to be patriotic— to display— "

"One decal, sure. Two, maybe three. Five, even ten is still patriotic. But not the whole goddam car. That's ridiculous."

"At what point does it become unpatriotic, though?"

"I would say a dozen decals begin to border on sarcasm."

"Suppose I were a sweet little old lady; wouldn't you just consider it eccentric behavior?"

"Yeah, probably."

"Then tell me, at what age does sarcasm turn into eccentricity?"

"I give up," he says, pretending not to look at the outline of her bosom. "But the last time I tried to have a discussion with somebody dressed like you, she called me a pig."

"Because of something you did?"

"No, because of this uniform. I was actually a pig before I became a cop, but they cheered me for that...."

Flashiebackie:

A large crowd at a peace rally is cheering the highway patrol person, a few years younger, as he stands on a flatbed truck being used for a stage. He is wearing a uniform of the Green Berets, and holds up between his thumb and first two fingers a detached human ear on the other side of the microphone into which he speaks.

"I appreciate your applause," he says to the audience, "but please remember that I'm really talking to this ear. Forgive me, ear, for cutting you off as a souvenir from one of my many victims."

Someone in the crowd calls out: "You're the victim! You're the victim!"

"Forgive me, ear, for having tortured your former owner and forcing you to listen to his screams of pain."

"It wasn't your fault," someone else shouts. "You were just a lackey for the ruling class!"

"Forgive me, ear, for shooting heroin so that I could drive shooting bullets out of my mind."

"It's all right," the ear responds. "You were already addicted to the system...."

Two shadowy figures are pouring gasoline over a third one who sits on a stolen highway patrol motorcycle. At dusk he rides it down a city street, turns onto the sidewalk, crashes straight through the plate glass window of the Chase-Folly Bank and proceeds to explode into fire.

The local newspaper receives this handwritten message:

Materialism has become obsolete.

Spirituality continues to fill the void.

Any inconvenience to citizens is a necessary byproduct of abstract complicity.

We are all responsible for whatever the banks do with our money.

What happened at Chase-Folly must be considered as the first American Kamikaze action.

Heretofore, individuals have destroyed only themselves because they were too sensitive to bear inhumanity any longer.

However, there has now come into being a new organization for those of us who wish to transform our acts of self-destruction into socially useful deeds.

If you decide to take your own life, why not remove an evil institution in the process?

That is the only requirement to join Better Your Exit.

–BYE Communication #1

Not too long after Rosebud Zwalyimeh drops off the highway patrol person at his attorney's office downtown, she picks up another hitchhiker. But this one isn't thumbing a ride, he's tongueing a ride.

"Where are you going?" Rosebud asks.

"I am working at Camp Crap," Tongue Fu answers.

"That's where I'm headed for. Isn't that an amazing coincidence?"

"Perhaps not. Must we not also contemplate all those coincidences which do not happen to us?"

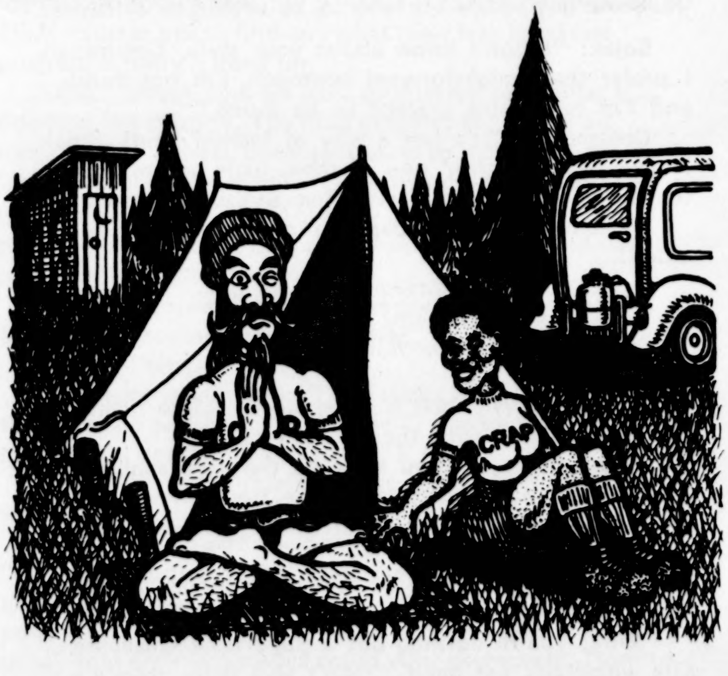
8

WELCOME TO CAMP CRAP

They're all over the place. Gurus. Each one wears a sweatshirt that says CRAP on the front, in order to distinguish them from amateurs, disciples, skeptics, tourists, reporters and concessionaires.

The paths to consciousness are paved with stalls, tents, booths, domes, teepees, trailers and huts.

Chocolate Graham is touching the thigh of a swami with a purple turban.



"No," he says, "you must not do that. We should abstain from such pleasures of the flesh since it is all an illusion anyway so why bother ourselves, you see?"

"Testing. One, two, three. Testing." This voice is coming from a speaker system beside a gigantic television screen set up in the middle of a field. In the woods there is an outhouse with a sign nailed to the door that reads *TV Ching*.

An audience of a few hundred watches an image begin to form on the screen. It's a naked man standing next to a two-seater toilet.

"Are we on? Lovely. Good afternoon. I represent the Asshole Liberation Front. Our premise is that any level of illumination must be able to withstand the temporal indignity of defecation or it isn't worth being

communicated. In my own case, of course, they're inseparable."

He stands on the toilet seat, then squats. As he squeezes out a turd, his face grimaces with delight.

"Sometimes I think my bowels move me more than I move them. I tell you, friends, this is basic. There's a one-way mirror in here, with a television camera behind it, but my demonstration should be on all the networks. Oh, I realize it might seem trivial, but the importance of squatting cannot be exaggerated."

A pair of federal agents is busy taking notes. One, Primo Columbian of the FBI, is wearing a new pre-soiled trench coat. The other, Notary Sojak of the CIA, is wearing a completely shaved head....

Flashiebackie:

The Chief Coordinator is giving instructions to Columbian and Sojak.

"What we want to do is link up the Camp Crap people with the Better Your Exit group. Now, our surveillance indicates that there's a half-Japanese fellow at the camp whose father was a Kamikaze pilot in World War Two. With a tie-in like that, he would be a particularly relevant target of your investigation."

Columbian: "Lemme ask ya somethin', chief. How we gonna prove these people are subversive if they're operating right out in the open?"

Sojak: "I'll answer that. They're shrewd. They don't wanna look suspicious. That's the most suspicious thing about them."

Columbian: "Well, I been readin' a book of Haiku poetry so I can start a casual conversation with the Japanese guy. They all have to be seventeen syllables."

Sojak: "I don't know about your style, Columbian. I prefer the straightforward approach. I'm not dumb, and I'm not gonna pretend to be dumb."

Columbian: "It's just a way of learnin' stuff, Sojak. I even started writin' one of them little poems. Listen to this. I call it 'Haiku with Five Syllables Missing.' "

He takes a scrap of paper from his pocket and reads aloud:

We stayed up all night
Discussing the sense
Of touch....

Rosebud Zwalyimeh is touching the same thigh of that same swami with the purple turban.

"Yes," he says, "you must do that. We should not abstain from such pleasures of the flesh since it is all an illusion anyway so why not indulge ourselves, you see?"

"But then why did you reject my friend Chocolate?"

"She is not nearly so beautiful as you."

"Why, you're nothing but a Superficial Chauvinist." She withdraws her hand. "Don't you think there's a passion inside her little body too?"

The swami puts his hand on her thigh. She removes it.

"Does this mean," he asks, "that you have come here only to test my consistency?"

"That's right, swami. It's a technique we've used successfully in the civil rights movement. A black person would try to rent a home and be told it wasn't available. Then a white person would try, and if it turned out to be available, legal action could be taken."

"I've done nothing illegal, my dear. I merely find you extremely attractive."

"Well, you can just take your turban and shove it up your purple illusion."

9

THE SCIENTOLOGEEK AND THE FRANKFURTER MAKER

"Crap," is how Captain Mediafreak answers the camp phone. He's in charge of the switchboard. "Yeah, this is me....Hey, Mom, how you doing?...Are you kidding? They started the summer re-runs in the spring .... Well, I'll tell you, my TV was always warmed up, even when it wasn't on— which means the power was going twenty-four hours a day— and one night I caught myself switching on the set and realizing the utter absurdity of saving a few seconds before a program on the energy shortage came on— sponsored by an oil company, yet— so I just decided to give it all up and flew out here. Besides, Tongue Fu was beginning to get hooked on the tube... He's out getting me a hot dog right now..."

Waiting on the line leading to a frankfurter stand, Tongue Fu is showing the photograph of his half-sister to a follower of Scientologeek standing in front of him, who doesn't recognize her, but takes out a photo himself.

"This was my brother. He's the one who supposedly drove that motorcycle into the bank. But I absolutely don't believe he killed himself. We talked about suicide once, just an intellectual discussion, and he said he would never consider it because he preferred to shun irrevocable decisions. I think he must've been hypnotized by the Communists."

He is holding an empty soup can in each hand. They're attached by wires to a Geek-Meter, which he glances at while he speaks.

"Oh, good," he notes, "I'm telling the truth again."

When he reaches the front of the line, the Scientologeek requests, "One hot dog, please"— holding up his index finger in a gesture indicating one that he is convinced must have originated with cave dwellers— "and could you make it well done?"

The frankfurter maker takes the hot dog that's closest to him on the rotating machine and sticks it inside a roll.

"Excuse me, I asked for well done."

"This is well done. Show me one that's well done."

"There." The Scientologeek points toward a hot dog that appears well done. "That one."

"All right," the frankfurter maker snarls, "you want that one, I'll give you that one, but it's raw."

"Never mind. I'll take the one you already fixed up."

"Look, you ignorant bastard, I've been cooking hot dogs on this machine for ten years!"

The Scientologeek stands there, the eternal customer, thinking: *Where's the manager? I'm going to call the manager!*

The frankfurter maker stands there, the eternal merchant, thinking: *How many times do I have to tell you? Ain't you never gonna learn?*

The Scientologeek checks his Geek-Meter to determine the validity of his emotion ....

Flashiebackie:

At a Scientologeek church meeting, the minister is concluding his sermon to a congregation of smiling faces.

"And so it is important, in understanding unhappiness on the job, to be cognizant of the fact that an individual who relates to the universe through a machine has a tendency, first to imitate the motion of that machine; then to become assimilated with the content of that machine; and finally to become subservient to that machine. It becomes an object of worship, and justifiably so.

"The machine is a central clearing house for the basic needs of that worker. It provides him with a source of income. It provides him with a circle of like-minded companions. But most of all it provides him with an unbounded objectivity which renders subjective praise of the machine itself unto a state of clear contradiction.

"But it functions ...."

Tongue Fu orders "One hot dog with everything on it, please. And a large Payola-Cola."

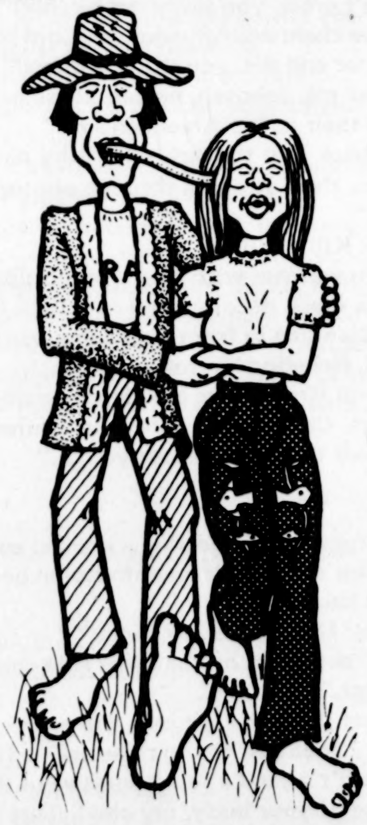
The frankfurter maker grasps at a straw and pulls the proper spigot.

On his way back to the office where Captain Mediafreak is waiting, Tongue Fu sees Rosebud Zwalyimeh, and they walk there together, arms linking. He tells her about his encounter with the Scientologeek.

"Self-hypnotism," says Rosebud. "That's what this camp is really all about. It's a transformation of the cultural programming toward romance, where you keep focusing on the image of the person you care for. Only now, instead of a sexual object, there's a constant refocusing on the guru of your choice."

"I do not need a Geek-Meter," says Tongue Fu, "to tell me that I love you."

"You know," sighs Rosebud, "I was raped a few years ago by a dude who said 'I love you' just before he came. And those words have never been the same to me. So just put your sweet tongue in my ear and you don't have to say anything. I'll know."



Without losing step or moving his head any closer to hers— relying entirely on peripheral vision— he places his tongue comfortably in her ear, and they continue walking.

A television camera person approaches them, film rolling. Tongue Fu whips his tongue out of Rosebud's ear with almost invisible swiftness, and with it he turns the camera around one hundred eighty degrees so that the lens is looking back over the camera person's shoulder, and then just as swiftly Tongue Fu returns his tongue to Rosebud's ear.

"Ooh, that felt good," she says. "Do it again."

Tongue Fu removes his tongue from Rosebud's ear but instead of returning it he explains his act: "The camera saw my tongue in your ear but out of context."

"Can't you keep talking while your tongue is still in my ear, just like they do in the comic books?"

He tries, but his words are inaudible.

When they reach the office, Captain Mediafreak says, "My mother sends her regards."

A radio bulletin announces: "Another development in the Better Your Exit kamikaze case. Police say they have discovered a mysterious Oriental ear in the debris at the Chase-Folly Bank. Further details concerning this new clue on the six o'clock news."

The telephone rings.

Rosebud says to Tongue Fu, "If you think my ear would be out of context— "

Captain Mediafreak picks up the phone and says, "Bullshit. I mean Crap."

10

AN EVENING WITH TV CHING

The season progresses. Thousands of blankets with families and friends are now sprawled on the field watching *TV Ching* and the sun setting pink and grey behind it.

On the gigantic screen, FBI agent Primo Columbian and CIA agent Notary Sojak are sitting on the twin toilets, talking to each other. Nailed to the wall behind them is a plaque that reads:

> *"Refresh my bowels*
> *in the Lord."*
>
> *—St. Paul, Philemon 1:20*

Columbian: "Well, we have undercover children working the Pen Pal circuit now. My own kid is corresponding with a Black Panther kid to find out what their free breakfast program is really a front for."

Sojak: "Great. And we have counterfeit one-dollar bills flooding the country. The lines at banks and stores are moving like molasses, because it takes so much time to check 'em out. Not like your counterfeit twenty-dollar bills. This is much more equitable. Anybody can get stuck with singles. We'll see what happens when the wealth is spread around. Chaos, that's what."

There is a sudden knock on the door, followed by a female voice saying, "Hello in there?"

A duet: "Who's there?"

"My name is Innocence." She sticks her frizzied head in the door and continues. "I'm sorry to disturb you gentlemen, but are you aware that you're on *TV Ching*?"

"What?" says Columbian. "You mean this is the outhouse where all that stuff comes from?"

Sojak turns toward the one-way mirror and confides: "He's only kidding, folks. Always pretending to be dumb, that's his style, y'know. The truth is, of course we know we're being watched. Twice a day. But I for one am proud to say that only in America could your protectors afford to be so arrogant. And I know that goes for my partner, too— right, Columbian?"

"Huh? Oh, sure. Say, listen, Sojak, I've been workin' on that Haiku."

He reaches down to his pants, which are crumpled on the floor surrounding his shoes, takes a scrap of paper out of a pocket, and reads:

We stayed up all night
Discussing the sense
Of touch...
At sunrise we fucked.

"Now," muses Columbian, "I just gotta work out the line structure."

"C'mon, let's get outa here before you blow our cover," says Sojak, practicing his laugh and buckling his belt.

Innocence takes their place on the *TV Ching*.

"I liked it better with five syllables missing," she begins. "But seriously, I would just like to say a few words. Live your alternative. Thank you."

In the field there is scattered applause as Innocence departs and Tongue Fu enters.

"I am looking for my sister," he says, holding her photograph up to the one-way mirror. "Perhaps one of you has seen her."

Tongue Fu is replaced on *TV Ching* by a Cowboy in his sixties. He places toilet tissue on the seat before he permits his buttocks to come in contact with it.

"I understand that CRAP is an acronym for Coincidence Rationalization and Practice. Well, that sounds anti-religious to me. I'm here to tell you folks about the greatest coincidence that ever happened to me ...."

Flashiebackie:

The Cowboy in his forties is standing in front of a saloon.

A Yankee of the same age bracket is standing across the street in front of a general store.

Each has a holster on his hip.

They move clockwise, with all deliberate slowness, step by bowlegged step, until they are finally facing each other down the middle of the street.

The spectators lined up on both sides observe in silence.

An Indian removes a feather from the base of his braid.

The Cowboy says to the Yankee: "You are betraying the American Dream."

The Indian says: "The American Dream was a Nightmare," and tosses his feather high up into the air. Tension permeates the atmosphere. The feather drifts back and forth, lower and lower. An unidentified harmonica player does a bluesy version of *That Old Black Magic.*

When the feather finally touches the ground, both the Cowboy and the Yankee simultaneously reach for their guns and shoot all in the same motion.

The two bullets travel toward their respective targets, but meet instead, midway between the Cowboy and the Yankee, in a head-on collision. They explode into each other with such fury that they create, while suspended in mid-air, the most expensive coin in the world ....

"And it's still enshrined in the National Archives," says the old Cowboy, wiping away pieces of feces from his wrinkled tushy. "Strange. We wear our fake jewelry and keep our precious jewels in a safe. But you can never tell me that this incident was not personally ordained by the Almighty!"

When the Cowboy leaves, a young man with a new beard and shaggy hair takes his place.

"I'm a veteran," he says, "and I have some good news and some bad news. First, the good news: We can finally pull out our ground forces and end the war. The bad news is the reason why: Because, now that there's a new distribution set-up for our opium supply, we won't need all those returning G.I. cadavers any more"'

Rosebud Zwalyimeh, watching *TV Ching* in the field, blurts out to herself, "I know who that is." She runs to catch him leaving the outhouse.

"I recognize you," she breathes heavily. "You're Officer Serpento. Remember me— Rosebud? I signed an affidavit in your lawyer's office that I gave you a ride when your motorcycle was stolen. What are you doing out of uniform?"

"Oh, well, I left the force so I could devote full time to organizing."

"But why do you allow them to continue circulating that phony Oriental ear story. There's no mystery. It belonged to you."

"You better forget about that. It was a stupid mistake. I should never have left it in my tool kit. But you've got to understand. That ear was like my credentials for infiltrating the Rotten Apples— that's a vigilante organization, consisting of one bad cop from every precinct— but I need a different image now. Don't look, but we're being watched by a couple of feds."

Rosebud looks anyway. Columbian waves at her. Sojak kicks him in the ankle.

"How d'you like my earring?" Serpento asks. "I even got myself pierced for the cause. You've got to trust me."

11

VISIT TO A NUDE EXORCIST PARLOR

"I'd like you to check out that nude exorcist parlor," Chocolate Graham is saying. "Make sure it's not a front for prostitution. That could be used to discredit us."

And so Tongue Fu wanders toward the area of Camp Crap that has come to be known as Participation Valley.

There is a makeshift solitary confinement cell in which a former prisoner teaches his method of Enforced Meditation for twenty-three-and-a-half hours a day.

Further down, there is a continuing experiment on the effect of conflicting prayer upon plants. For couples only. A middle-aged wife and husband take turns speaking to a row of tomato plants.

She: "Please, God, let these luscious plants grow!"

He: "Don't grow, you lousy red bitches!"

She: "Give them nourishment, oh Lord above!"

He: "Wither and die, you little mothers!"

She: "Hear me, Jehovah, protect these helpless beings to survive on their native American soil!"

He: "Go back into the dirt, you filthy pinko greenies!"

She: "Give them strength through photosynthesis, I beseech you!"

He: "Kill! Kill! Kill!"

Tongue Fu watches with weary preoccupation, then moves on to a shack decorated all over with Persian bedspreads. Standing in front, wearing a nun's outfit, is Virginia Real, fingering her rosary beads.

"Would you like to have a nude exorcism? Only ten cents a minute. Come on in, take your clothes and get rid of whatever evil thoughts possess you ...."

Flashiebackie:

Young Virginia Real, wearing a pressed convent school uniform, sits on one side of a confessional booth, twisting her flame-red hair.

"I let a boy feel my tits last night."

"Breasts," the priest on the other side corrects her. "Tits are vulgar."

"My breasts. First the left one. Then the right one. Then both together. Then just the left one again. Then— "

"You mustn't permit a representative of the devil to take advantage of your body, my child. That is a privilege which has to be earned."

"But why does God make it feel so nice then?"

"Allow me to quote from the Scriptures." He leafs through a Bible. "Here it is, the Book of Job. 'What? Shall we receive good at the hand of God, and shall we not receive evil?' "

"I've read that too, Father, and it seems to me that God tosses out good and evil arbitrarily, just because Satan taunts him into it."

"God was testing Job's faith."

"Well, I think God's on a terrible ego trip then."

"For shame. For shame."

"If I were God, I would've just let Job alone."

"Please, we're getting off the subject. Now, you say it felt nice for this boy to feel your breasts. But your guilt doesn't feel so nice, eh? ..."

Tongue Fu has removed his clothes. So has Virginia Real. They sit naked on facing chairs.

"Love your third eye," she says.

"You have pink pubic hair," he observes.

"Yes, I know. Now tell me, exactly what would you like to have exorcised? Don't be shy."

"I want to know— I am wondering if— you are a— prostitute?"

"Ah, I understand what's troubling you." She takes a deep breath, clasps her hands and moves her lips in a silent prayer that gradually becomes audible. "Begone, oh, demon of commerce! ... Free this victim of your mercenary ways! ... Cast out they exploitative self from this walking prison! ..."

After ten solid minutes of being harangued in such fashion, Tongue Fu asks her to stop.

"I feel," he says, "as though I am being turned into a human tomato plant."

Virginia Real glances at her clock. "You owe me one dollar. Look, I'm not a hooker, but I do think you're kinda cute. Would you like to ball or anything? No charge."

"I would be grateful"— he hesitates— "if you would massage— my tongue."

He moistens a dollar bill with the tip of his tongue, leaves it sticking there and passes it to her.

"Holy muscle! ... Would you"— she hesitates— "whip me— with your tongue?"

"I do not wish to inflict pain."

"Oh, please. You'll be inflicting pain if you don't. I'll give you your dollar back if you do it."

"But that would make me a prostitute."

"I'll tell you what. I'll massage your tongue if you'll whip me with it."

"But"— he is obviously tempted— "would that not be prostituting my tongue?"

"Think of it as barter," she says, limbering up her fingers.

As if in belated response to the Jackie Kennedy rubber mask in that Times Square Amusement Center window, the third eye tattooed on Tongue Fu's bellybutton winks at Virginia Real while she whines with pleasure at each slimey lash of his sacred tongue across her lower back.

12

TONGUE FU MEETS HIS SISTER

The Scientologeek recognizes Tongue Fu leaving a workshop in Advanced Breathing.

"Hey! That photo you showed me the other week. I saw her. She's with the Giggling Maharishi caravan over the hill there."

"Oonga-Boonga, Patoonga."

"I beg your pardon?"

"That is an ancient blessing of appreciation. I am a Patoonga priest."

"Beautiful. I thought you were a plainclothes cop looking for a runaway."

"I do not lie. She is my sister. I must go find her."

Over the hill, the Giggling Maharishi is in the middle of delivering a lecture on Transcendental Breastfeeding to a group of disgruntled dairy industry conventioneers wearing *Milk Does Something to Every Body* lapel buttons.

"After all," he giggles, "statistics show that bottle-fed babies have a higher infant mortality rate." Giggle. "You westerners are very anxious to export your artificial culture to underdeveloped nations, from the cradle to the casket." Giggle, giggle. "You send us bottles we cannot sterilize adequately, to fill with expensive formula that must be watered down so we can afford it." Triumphant giggle. "But if you want a formula for living, I can give you that, as I have done with many famous people...."

Flashiebackie:

Back in the mountains of India, the Giggling Maharishi is listening patiently to the Beatles singing *Hey, Jude* under a tree. When they get to the line, "Take a sad song," in the lyrics, he stops them abruptly and says: "I demand to know why the four of you have decided to leave so suddenly, after all I've done for you."

John: "You're supposed to know everything. So why should we tell you?"

George: "Wait, I think we own him an explanation."

Paul: "The truth is, we discovered that you gave each of us the exact same so-called individualized mantra."

Ringo: "Of course, we had to betray your confidence in order to find that out."

The Giggling Maharishi angrily takes his portable tank of nitrous oxide and leaves, while the Beatles continue singing: "— and make it better...."

Tongue Fu sneaks around the grounds until he chances upon this pastoral scene: a couple of dozen females in their teens and twenties, all sitting quietly crosslegged in a large circle in the meadow, each simultaneously munching on a brownie, nursing a baby with one breast and pumping the other breast of its milk into a special container.

He recognizes his sister among them, but rather than interrupt, he walks slowly around their perimeter, playing a soothing melody on his kazoo. Several of the women look up, smile and utter "Far out."

One by one, they get up and pour the contents of their special containers into a huge Mason jar. When Tongue Fu's sister does this, he approaches her and introduces himself.

"Whew," she says. "I've been eating hash brownies all morning. This is quite a heavy trip you've picked to lay on someone so thoroughly stoned as I am."

"Did not our mother ever make mention of me?"

"Yes, once. But she may be the only thing you and I have in common."

"I wish only to make contact. May I hold your child?"

"Sure. Here, Kilo"— she carefully passes the baby— "say hello to your Uncle Tongue."

"I have never held a child before."

A totally non-verbal quarter-of-an-hour later, Tongue Fu leaves, just in time to join that group of disgruntled dairy industry conventioneers, all being given free samples of *Maharishi Hashish Yogurt.*

On the way to store his yogurt stash in the office refrigerator, Tongue Fu spots the frankfurter maker, weeping bitterly into his sauerkraut.

"That fuckin' Department of Agriculture," he cries. "Now they're gonna permit fatty hog jowls to be used in hot dogs. I'm so discouraged."

An eager passerby pulls a tissue out of a box and hands it to the frankfurter maker.

"Here, wipe away your tears with this."

The tissue has a stenciled portrait of an obese teenager with the caption: *Who Is Guru Golly Ji?*

The frankfurter maker blows his nose and smears the image.

13

BETTER YOUR EXIT STRIKES AGAIN

In town there's a supermarket with a truck parked in front, filled with cardboard cartons containing foodstuffs.

A slide of metal rollers protrudes from the open door on the side of the truck down onto the sidewalk. A separate section of slide protrudes up onto the sidewalk from the basement of the supermarket.

A young black man is standing on the sidewalk between the two sections of slide. A second young black man inside the truck is rolling carton after carton down the slide. The first man catches each carton and puts it on the rollers of the slide going into the basement. He stops periodically to let folks walking on the sidewalk pass through.

You Are the Sunshine of My Life, Stevie Wonder is radio-serenading Rosebud Zwalyimeh and Tongue Fu, while she drives the little-American-flag-decal-covered Volkswagen into town, both of them eating *Maharishi Hashish Yogurt* along the way.

She parks the car in the supermarket parking lot, and they walk toward the entrance holding hands.

The slide to the basement gets jammed. The man on the sidewalk starts to adjust the bunched-up cartons, but the man in the truck continues sliding down more cartons. Now the man on the sidewalk must use his other hand in order to keep them back at the same time.

"Hold it!" he calls out. "Hold it!"

He's stuck there, with his arms outstretched, inadvertently blocking the only passageway that had remained on the sidewalk.

Rosebud and Tongue Fu arrive at this point. She spontaneously kisses the helpless man on the cheek, letting go of Tongue Fu's hand, she ducks under the laughing black man's arm ....

Flashiebackie:

A black activist, the boyfriend of a younger Rosebud Zwalyimeh, is laughing at her.

"I'm serious," she says. "It gnaws at me to try and identify with *One Man, One Vote*."

"That's just semantics," he says. "I mean, you know, man embraces woman." He attempts to hug her but she pulls away.

"No. I can't separate our personal relationship from the movement. I'm through with double standards. I want equality."

"Do you know that when I was a kid, I wanted to be white so badly that I used a razor blade to make a part in my kinky hair?"

"Well, I worked in a law office and had to bleach the hair on my legs so it wouldn't show through my stockings. So I've been niggerized too."

"We're certainly not the same emotionally, though. I could have a casual affair, but it's different with chicks. You have to get involved with every guy you sleep with."

"First of all, that's not necessarily true. But I just want the option. I have the right to get involved with any guy I sleep with. That's the risk of freedom. I'm not your slave."

"You mean I'm not supposed to ever get jealous?"

"That's the last politics," she says. "Jealousy is the difference between love and possession."

"But it's always been so good with us in bed."

"That's not enough any more."

"Sheeeit." He forces himself sexually upon her.

Just before he comes, he says, "I love you."

"Well," she sobs, "you finally made it. You've become white ...."

Tongue Fu kisses the laughing black man on the other cheek, ducks under his other arm and rejoins hands with Rosebud. They separate again to help get the cartons straightened out on the slide. Then they head for the supermarket entrance.

"Open, sesame seed," Rosebud gestures, and the automatic glass door obeys her command.

Tongue Fu gives her a ride in a supermarket cart.

Rosebud puts a can of frozen orange juice down his back.

They go on the little rides that are there to divert children from mischief.

Then they examine with a haughty air the gourmet delicacy rack.

Tongue Fu picks up a package of truffles and asks a passing clerk, "What are these?"

"A dollar-forty-nine."

Rosebud strolls alongside the meat display counter, printing on the respective price cards, *Dead Cows* and *Dead Pigs* and *Dead Chickens*, with a magic marker.

Suddenly three gunshots are heard from outside.

Frizzie-haired Innocence from Camp Crap has apparently killed both of those young black men and then herself. In her pocket is found this handwritten suicide note:

There is going to be famine in the United States as well as Pakistan.

I cannot bear the thought of living with the knowledge that people are starving to death.

I shall take the lives of two others along with my own.

They are integral parts in the chain of food distribution.

They are traitors to their blackness.

In keeping with the principle of Better Your Exit, I have decided to make an example of them.

There will be more such examples by other members unless everyone starts fasting.

This is the most effective way to make that demand known.

I apologize for disturbing your afternoon.

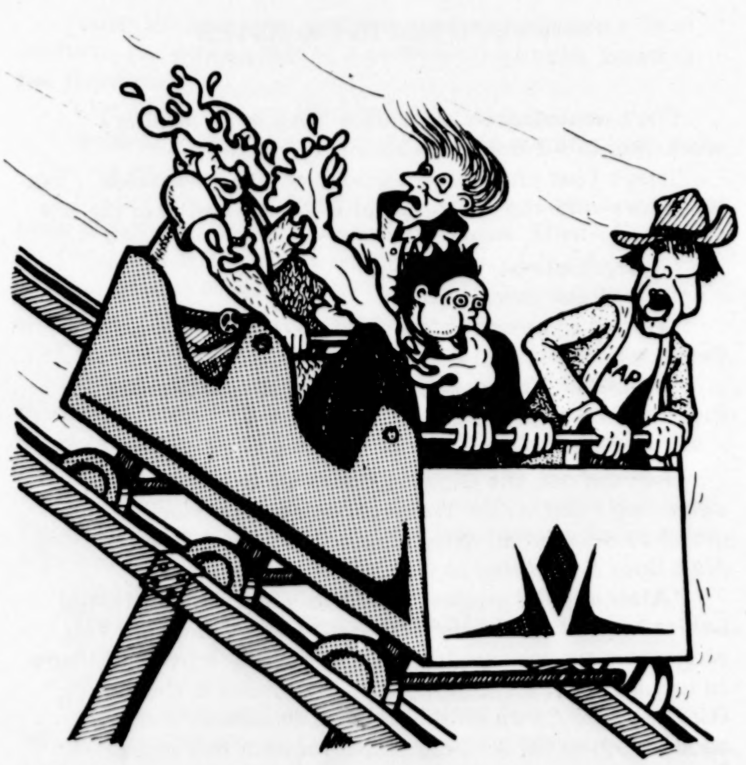
–*BYE Communication #2*

"It doesn't make any sense," says Rosebud. "She was the one who said 'Live your alternative' on *TV Ching*."

"Perhaps," replies Tongue Fu, "this was her alternative."

14

GURU GOLLY JI GETS TAKEN FOR A RIDE



Surrounded by his official entourage, Guru Golly Ji chomps on French-fried potatoes, licks a frozen custard and gazes at himself in a distortion mirror at the amusement park that a bunch of Camp Crappers are visiting.

Tongue Fu invites him to go on the roller coaster.

"I accept," he says. "I could use a new metaphor. Life is like a roller coaster."

"Do you enjoy going on the rides here?"

"Listen, they all try to squeeze enjoyment from out of fear. But if somebody ain't afraid, then that's enjoyment also. Outasight."

As their roller coaster car ascends the tracks, Guru Golly Ji folds his arms across his chest. When everyone else screams on the descent, he maintains a peaceful facade, even on the steepest decline.

Nevertheless, he throws up. His divine vomit curves around and lands on the notepad of Columbian, who is sitting next to Sojak in the seat behind ....

Flashiebackie:

Six-year-old Golly Ji is a pupil at the Famous Gurus School.

"I don't wanna be a famous guru," he wails.

His teacher places an electronic stimulator against Golly Ji's thigh. He reels with pain. "Now behave yourself or you'll get another contingency shock."

"I'm sorry. I'm ready for today's lesson."

"All right. Now then. What is the value of nostalgia in recruiting converts?"

"To associate feelings of warmth with the famous guru."

"What is the value of ritual in recruiting converts?"

"To reinforce dependency on— ah, please, can't I just go out and play with the other kids?"

The teacher gives Golly Ji's other thigh a taste of the electronic stimulator. He reels with pain once again. "Now let's get on with your catechism. The value of sacrifice?"

"To reinforce dependence on the famous guru through the concept of cognitive dissonance ...."

On the ground again, Tongue Fu introduces Guru Golly Ji to Wormer Slickheart, the founder of Materialistic Spiritual Training, better known by its initial letters, MST.

After a snack of corn-on-the-cob and strawberry slush, the trio goes on the ferris wheel, where Slickheart addresses himself to Guru Golly Ji.

"I'm weird, you're weird. We both get rich off our followers. But there's a difference. Your followers give up all their material possessions to you. Whereas, mine have the satisfaction of giving me a healthy chunk of their cake plus continuing to eat the rest of it themselves.

"By applying the spiritual training received at my seminars— such as aggressive eye contact, for example— to sales techniques, why they can proceed to build up their income at a geometrically increasing rate. Or what's a growth removement for?

That evening in the Camp Crap office, Captain Mediafreak and Chocolate Graham are watching the NBC Nightly News on a portable black-and-white television set.

David Brinkley is reciting his Journal:

"The dichotomy between the theory and practice of harmonious living at Camp Crap in Oregon has been further underscored with the second American Kamikaze action by an individual from there. She has been identified only by the putridly ironic name, Innocence.

"Lacking any rational motivation, she shot and killed two young black men and then took her own life, leaving a suicide note which included a reference to Better Your Exit.

"Originally, that mysterious organization had as its main precept the attack on institutions considered to be evil. But now, apparently, they have escalated their tactics to include the murder of human beings they don't even know personally, and then they have the unmitigated gall to try and convince us that such acts are committed out of hyper-sensitivity.

"The FBI has entered the case and revealed today that another detached Oriental ear was found inside the truck where the shooting took place. Supposedly the double assassination was a spiritually inspired warning against impending famine. Isaiah: 58 suggests, 'Share thy bread with the hungry,' but it doesn't say anything about destroying people who merely happen to be delivering food to a supermarket.

"Reporters who ordinarily limit their professional side-taking to sports and the weather have recently been expressing their dismay publicly about this particular tragedy, but that's understandable because a great many people they've interviewed at Camp Crap seem to be so much into grasping for their own personal salvation that they remain unperturbed by the horror around them.

"Their rationalizations range from 'What can I do about it anyway?' to 'Well, that's just their karma.' One veteran of the psychedelic revolution seemed to sum it up when he complained that someone had stolen his sleeping bag on which he had painted the slogan, *Property Is Theft* .... John?"

"Thank you, David," says John Chancellor. "We'll have news about increased fighting in the mid-East that could erupt into World War Three, but first this important message."

An announcer asks: "Are you having difficulty choosing between the mouthwash you hate the taste of and the mouthwash you love the taste of? Well, now there's a revolutionary new product for the thoughtful consumer— *Yin-Yang Mouthwash* ...."

Chocolate Graham and Captain Mediafreak are busy kissing and groping each other, as they do during every commercial.

15

THE CONTRACEPTION CARNIVAL

Balloons emblazoned with Monarch butterflies mating are tied to the trees. Balloons with red and yellow polka dots are being carried around by children. Balloons with sailboats on waves of greenish-blue are skittering above grandparents.

Up close each balloon reveals its false legend: *For the Prevention of Disease Only*.

Camp Crap is having a Contraception Carnival.

The musical strains of *Too Many People* boom out over the festivities through the public address system.

"Guess how many birth control pills are in this jar," invites a pre-pubescent barker, "and win a free trip to the overpopulated land of your choice!"

"Take a guided tour through the Fallopian Tubes," shouts another. "Learn about our reproductive system from the inside!"

Along the midway, gurus and disciples are playing Miniature Frisbee with surplus diaphragms.

There is a dazzling display of costume jewelry designed entirely out of inter-uterine devices and library paste.

An ongoing demonstration of Tantric Yoga keeps turning spectators into volunteers.

A Vasectomies-While-You-Wait stand has no customers at all.

The most popular attraction is *Semenchase*, consisting of several spermatazoa-shaped wheel-carts which can be propelled forward only by repeated pelvic thrusts of the passengers. The first one to reach the goal— a giant replica of an ovum— is declared Fertilizer. Bets are taken on the winner of each race, with all proceeds going to the Oregon branch of the Planned Parenthood Federation.

"I'm sorry to bother you," Primo Columbian is saying to Tongue Fu, "but did you know that you have absolutely no identity?"

"Our computer check," explains Notary Sojak, "indicates that you have no birth certificate; no alien immigration or naturalization papers; no credit cards or charge plates; no bank accounts; no elementary or high school; no university registration; no residence; no telephone or gas and electricity accounts; no validated employment pass or badge; no evidence of treatment at any hospital; no registration with Selective Service; no military discharge; no Veterans Administration number; no Blue Cross or other insurance; no welfare case number; nothing at Internal Revenue; no motor vehicle operator's license; no arrest record; no fingerprints on file; no passport; no Social Security; and not a single membership in any recognized organization."

"But," says Tongue Fu, "I know— who I am."

"And so do I," adds Rosebud Zwalyimeh, who happens to have a can of Emko Foam in her hand, and with its whipped-cream-like contents she reaches up to decorate the top of Sojak's hairless head with a spermicidal peace symbol. "There. That's because you work for people who have a vested interest in the tools of destruction."

When Columbian and Sojak leave, Rosebud says to Tongue Fu, "Well, the Contraception Carnival seems to be an appropriate environment to tell you. I think I'm pregnant. At least my period is late. But I can't be positive whether you're the father— in which case I'd want to have the baby— or if it's Serpento's, in which case I'd want to get an abortion."

"Yet are we not all one?"

"Oh, sure, but some of us are more one than others...."

Flashiebackie:

"I just fucked a man," Rosebud is telling Chocolate Graham, "who has been personally responsible for torturing and killing hundreds of people on the other side of the world. Serpento. I let him seduce me because I was trying to test him. But I still don't know whether to trust him or not."

"Pretended intimacy has a way of boomeranging." says Chocolate. "You know, I started fucking when I was five years old. Pygmies don't have that kind of sexual hangup. After I was kidnapped to America I could see clearly that what keeps this society going is the manipulation of libido."

"But when I told Tongue Fu I'd slept with somebody else, he didn't even mind. Maybe I was testing him too. He's the first man I've gone with who doesn't treat me like private property."

"That kind of monogamy is just another form of kidnapping. Just like dating is a form of prostitution. Hookers simply eliminate all the middle people. The product is sold directly from the factory to the consumer. But, speaking of testing, did you see that anti-evolutionist guy on *TV Ching* the other night, who said that God put fossils on the earth in order to test our faith?..."

"I'm dismayed about the Contraception Carnival," an astrologer is saying on *TV Ching*, "because it's concerned with the quantity of people on our planet, but ignores the quality. Did you know that there is an inescapable correlation between those who are born under the sign of Scorpio and the need to be authoritarian? Now my solution is so easy. All we have to do is promote a universal boycott of intercourse-leading-to-conception for, let's say, only six weeks out of every year, from mid-January to the end of February, and within a few generations Scorpios could be completely eliminated from existence without the necessity of resorting to violence."

The astrologer is followed on *TV Ching* by a naturalist who states: "Although I'm not a Catholic, I am opposed to all forms of artificial birth control on the grounds of health and esthetics. But there is a way of determining precisely when you are ovulating by the simple method of taking your own temperature."

The naturalist in turn is followed by a pair of camp jesters in full harlequin regalia who periodically sit on the twin toilets and engage in snappy dialogue.

First jester: "Say, do you know how they originally discovered what normal temperature is?"

Second jester: "Why, no, but it certainly must be fascinating."

First jester: "Well, first they got five hundred people and they took all their temperatures."

Second jester: "What'd they take their temperatures with?"

First jester: "With five hundred thermometers, silly."

Second jester: "And then what'd they do?"

First jester: "Well, they added up all the temperatures, and then they took an average of all of them from out of the total."

Second jester: "And— you mean?"

First jester: "Yes. It was exactly ninety-eight-point-six."

Second jester: "Isn't technology wonderful?"

●

(To be concluded in **Whole Earth Epilog)**

Interview

Corporation Executive:
Alarmist views that American technology is somehow threatened by these minor shortages are the real cause of the current disruptions in the economy.

CQ:
I once had a beautifully-made parachute fail to open at 2400 feet. I was alarmed.

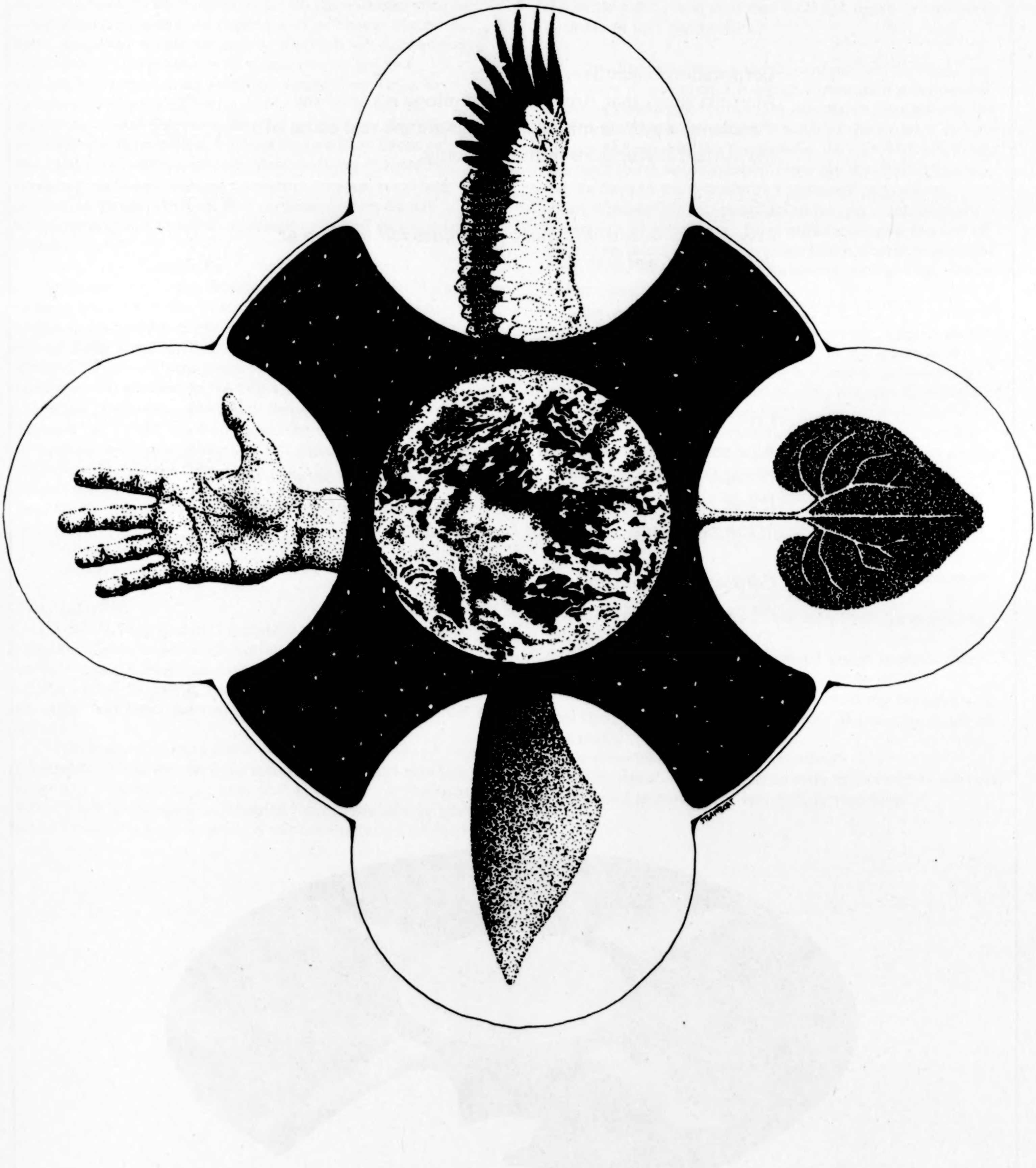
Corporation Executive:
But you're here today. You had a reserve parachute, right? That's exactly my point.

CQ:
All I remember thinking as I popped that reserve was, "I hope THIS one opens. I don't have any more parachutes." It was faith in parachute technology that got me in mid-air in the first place. Not much is left of that faith.

Corporation Executive:
We can make better parachutes, you know.

CQ:
CAN YOU MAKE MUSIC WITH THIS RECORD?

Understanding Whole Systems



Fast Motion

As a technician for many years, I have learned some about the adaptive circuit, adaptive man. In medicine, everything is different about man not like other systems or machines. There is no direct cause and effect.

In Electronics, adaptive circuits are brand new in the technology. As time goes on, more and more will be developed. Self-repairing equipment is an example. When malfunctions occur, the error signal triggers various actions, special current flows to reform capacitators, radiation to return transistor action back to normal. This is only an initiation to the principle.

In medicine, with man, its not what you did yesterday, that matters, but what homeostasis you have arrived at after many many yesterdays. In diagnosis, what symptoms are present are probably associated with the secondary effects. The problem is, How to get back to the primary mode of failure. If a heart attack has occured, it may have resulted from a temporary overload as the heart tried to adapt to decreased kidney function which may have resulted from the bladder infection as a result of enlarged and infected prostate which has hypertrophied from many years of overstimulation.

In order to work with adaptive systems, you have to learn more about what I call Fast Motion. Fast Motion is looking at time over a long period to see the changes with time. Like time lapse Photography. That is Fast Motion Change...

Donal
Morgan, Utah

CoEvolutionary Tidbits

Notes from Biology 185, CoEvolution, Dr. Paul Ehrlich, WF 10 11 Stanford University.

Coevolution is: Martin Buber comes to biology. "I-thou" instead of "I-it."

E: "Monoculture is instantaneously insane."

E: "The reason coevolution of insects and plants wasn't noticed before was: All the insect work was done by zoologists, who treated the plants as if they were so much vinyl."

Basic law of coevolutionary analysis: Nobody does nothin that they don't need. No characteristics are spurious.

Natura est non simplex. Simple solutions are illusions: at best they're primrose paths to the true fabric— — complexity.

As prey, the commoner you are, the worse off you are against predators, who can develop a reliable "search image."

There's such a thing as over-taxonomy. "Too many names block understanding."

E: "Every single plant that is known has some bug that eats it with great relish."

All that is required for species to coevolve is that they be "ecologically intimate."

Student: "If you're an obligate parasite you have to be very careful not to overdo it." (i.e., kill the host.)

From competition to obligate cooperation is a single continuity. It's against the interest of either predator or prey to eliminate the enemy.

Evolution is adapting to meet one's needs. Coevolution, the larger view, is "adapting to meet each other's needs." (Student.)

–SB

Vital Question

Where are the Earth's erogenous zones?

[Please address answers to Vital Question, Box 428, Sausalito CA 94965.]

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While you're at it, the outstanding periodical from FOE, **Not Man Apart** *(Tom Turner, ed., semi-monthly) costs but $5 from the same address.*

The Average Age in the Yukon

The average age in the Yukon is 25.

Sanctity and Adaptation

BY ROY A. RAPPAPORT

In the flood of material on mysticism in recent years it has seemed as if the only question to ask a religion is: How deep are your varsity mystics? From hanging out with Zen Buddhists, Quakers, and the like, I've gradually learned to ask: How central is service in your practice, and, how's the talk/do ratio? Now, from Rappaport, we may learn to inquire about a religion's meta-service— it's service not only to the human community but the entire life-system.

The root clue to our runaway civilization may be B. Dylan's: "Not much is really sacred."

—SB

I.

Man is facing an adaptive crisis because he seems to be unwilling or unable to regulate the ecological systems which he has the ability to alter. A number of factors have contributed to this state of affairs, and have perhaps even made it inevitable. For one thing, the technology of alteration and the empirical knowledge upon which it is based is simpler and more straightforward than that of regulation. It is also the case that alteration is usally in accord with the purposes of men while regulation often is not. Bateson (1968a) suggests that it is not merely the nature of some of his purposes which have endangered man, but purpose itself. Conscious purpose, which aims toward the achievement of specific goals, does not usually take into account the circular structure of cause and effect which characterizes the universe, and this cognitive failure leads to disruption.

This is a gloomy analysis, for surely purposefulness, which I take to be a concomitant of consciousness, must have been strongly selected for during much of the 3,000,000 years of man's span on earth. Man's purposefulness could hardly have endangered most of the ecosystems in which he participated as a hunter and gatherer (although hunting by fire may have been disruptive in some areas). Moreover, the foresight which forms a component of his purposefulness must have contributed substantially to his survival. A trait that has been adaptive for so long cannot easily be renounced; indeed if purposefulness is a concomitant of consciousness, its renunciation is impossible.

It was probably with his elevation to the role of ecological dominant, a role assumed with the emergence of plant and animal cultivation perhaps 10,000 years ago, that man's purposefulness became seriously disruptive. Cultivation demands that complex climax communities of plants and animals be replaced by simpler communities composed of smaller numbers of species selected by man according to criteria of apparent usefulness and arranged by him in limited numbers of short food chains of all of which he himself is supposed to be the terminus. Needless to say, such communities are likely to be less stable than the climax communities they replace. The relatively degraded nature of these anthropocentric ecosystems is in part a function of their simplicity, in part a function of the nature of constituent species: often poorly adapted to local conditions, often helpless, frequently unable even to reproduce themselves without some assistance. And man himself is a poor dominant. It is interesting to note that dominants in non-anthropocentric ecosystems are almost always plants. They are well suited to the role, for by their mere non-purposeful existence they fulfill the demands of their associated species. Men, on the other hand, must maintain their dominance through behavior. And since their behavior is less reliable than the existence of oak trees or algae, and since they are capable of making mistakes, and since the purposes which inform their behavior may not coincide with the requirements of the systems which they dominate, the conditions set by men tend toward instability.

But Bateson has suggested that the purposes of some men, at least, are tempered by wisdom, an awareness of the circularities of cause and effect operating in the universe, and of the interrelatedness of apparently separate things, and that wisdom resides as much in the non-discursive aesthetic sensibility as it does in knowledge (1969). He thus argues that the aesthetic sense is important in human adaptation as part of a mechanism by which man can transcend his own purposefulness. Later in this paper I shall take up the possible place of the sacred, which I believe to be related both formally and systemically to the aesthetic, in human adaptation. But first, I shall discuss the place of actors' understandings in the structure of adaptation and some possible malfunctions of adaptive structures. After a discussion of sanctity, the part that it perhaps has played in human adaptation and the ways in which its operation has been disrupted by the development of technology, I shall offer some brief general suggestions concerning theories of action.

II.

I take the term adaptation to refer to the processes by which organisms or groups of organisms maintain homeostasis in and among themselves in the fact of both short term environmental fluctuations and long term changes in the composition and structure of their environments.

Homeostasis may be given more or less specific, if not always precise, systemic meaning if it is conceived as a set of goal ranges on a corresponding set of variables abstracted from what, for empirical reasons, we take to be vital or indispensable conditions of the systems under consideration.

The simple cybernetic model suggested here has the advantage of possible empirical specificity on the one hand and broad applicability on the other, and it provides us with a set of systemic and biological criteria which permits us to assess in the same terms the adaptiveness of ontologically dissimilar phenomena. For instance, we can compare the adaptiveness with respect to population dispersion of particular religious beliefs, rules of filiation, courtship practices, social hierarchies and rituals of men with territoriality among wolves, epideictic displays among starlings and the endocrinological responses of rats to changes in population densities. It has the additional advantage of reminding us that man is a species among species, that he is free from none of the requirements of organisms in general, and that he is subject to the same general limitations as other animals.

Of course, there are serious difficulties with such simple notions of adaptation and their application to the activities of organisms, parts of organisms or groups of organisms. For one thing, we are aware only dimly or not at all of some of the survival needs of social and organic systems, and even when we can identify such needs metrical difficulties may be such as to vitiate whatever predictive or even analytic possibilities the conceptual formalization would seem to promise. As far as group phenomena are concerned, at least, it is probably the case that in the present state of metrics and of ecological and biological knowledge this view of adaptation, as simple as it is, is more heuristic than operational.

But to declare that a formulation is heuristic rather than operational is not to derogate it, nor is it sufficient grounds to remove it from criticism. Conceptual models which are less than operational form an important, perhaps even the major, portion of the intellectual equipment with which men, including scientists and social critics, operate. It is surely the case that some of these models induce behavior which is more appropriate to the world's structure than do others, and it is therefore useful to underline the heuristic deficiencies in the proposed model of adaptation, although they may be obvious. Commoner called attention last year to the deficiencies of the atomistic models with which scientists have long operated. We may note here that simple cybernetic models of adaptation may themselves be atomistic, and that concern with the homeostatic maintenance of some variables may distract us not only from other variables, but from a consideration of the structure of the larger system from which they have been abstracted. Thus, although we may represent the homeostasis of a system as a set of goal ranges on a corresponding set of vital variables, it would be a mistake to represent adaptations as, simply, collection of more or less distinct corrective feedback loops. When we refer to the adaptation of any system in a general sense we imply much more than the sum of its special adaptations (some of which may be, in part, contradictory), for these special adaptations must be adapted to each other in structured ways. Adaptations, human and otherwise, must take the form of enormously complex sets of interlocking corrective loops, perhaps arranged hierarchically, which include not only mechanisms regulating material variables, but regulators regulating these regulators, others regulating them and so on.

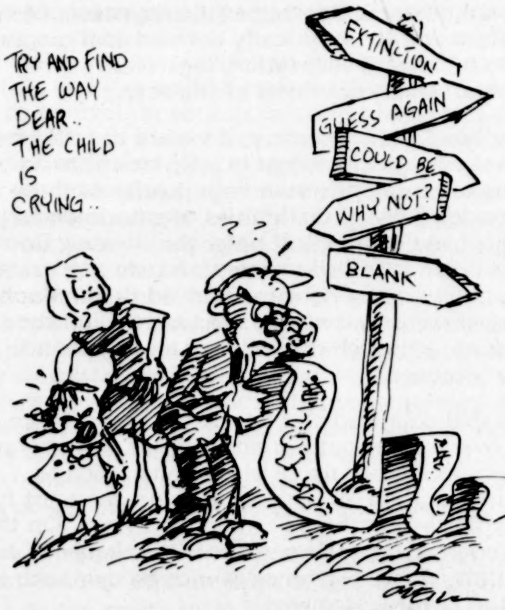
The notion of control hierarchies is hardly a new one, and it has been employed with considerable success in the construction of machines and the organization of industries. Analogies of "natural" systems to such "artificial" systems may be misleading. Since we devise the artificial systems we know how they are put together, and have fairly accurate ideas of how they work. But since we don't consciously construct natural systems we must discover their structure. And their structure will surely differ from those of machines in a number of ways. For one thing, they are bound to be much more complex than any machine or industrial organization devised for a much more limited range of functions. Organisms not only need to do things, they must be able to stay alive. For a second, they are likely to be much messier than artificial systems. The construction of an artificial system is likely to reflect the elegance of reasoned design, but the natural system will always reflect the opportunism of evolution (Kalmus 1966). Third, artificial systems are likely to be much more tightly coupled than some natural systems, particularly social and ecological systems.

Because of their complexity, their messiness, and the relative incoherence characteristic of at least some of them, it may well be that we shall never be able to describe the hierarchical organization of natural systems in manners which approach exhaustiveness, and the notion of hierarchical regulatory structures, like that of the feedback loops of which these structures are made, remains heuristic. But it is a heuristic that emphasizes the operation of whole systems, the interrelation of functions, without sacrificing attention to specific functions. Moreover, the very inadequacy even of holistic models as descriptions has an important metaheuristic function. It suggests to us that we are participating in systems whose workings, although crucial to us, we are not, and probably never shall be able to analyze in sufficient detail to predict with precision the outcome of many of our own acts. We must, therefore, investigate the possibilities for developing theories of action which, although based upon incomplete knowledge, will permit us to participate in such systems without destroying them, and ourselves along with them.

III.

As Vickers observed in his contribution to last year's conference, there still exist here and there economically primitive communities that apparently do not disrupt, and even maintain, the homeostases of the ecosystems in which they participate. It may be that the equilibria of such systems are a function of the relative inability of the human participants, because of their lack of powerful technology and their small scale social organization, to do much damage. But the damage that can be done by small groups of people equipped with nothing more than digging sticks, axes, and fire should not be underestimated,

Illustrations by Dan O'Neill



and I believe that at least in some instances the equilibria they maintain is in part a consequence of their understandings of the world, and the behavior which they undertake in the light of these understandings. Yet surely these understandings are likely to be even less accurate than our own.

I found that among the Tsembaga of the New Guinea Highland, a recently contacted group of bush-fallowing people among whom I have worked, relationships both with other local groups of Maring speakers and with the non-human species with which they shared their territory are regulated by protracted ritual cycles. Although the rituals which constitute these cycles are undertaken to maintain or transform the relations of the living with supernaturals, I have argued elsewhere (Rappaport 1968) that their operation helps to maintain an undegraded biotic environment, limits fighting to frequencies which do not endanger the survival of the Maring population as a whole, adjusts man-land ratios, facilitates trade and marriage, distributes local surpluses of pig throughout a wide region in the form of pork and assures to members of the local group rations of high quality protein when they are most in need of it.

I found it convenient, in attempting to comprehend the place of native understandings in Tsembaga adaptation, to invoke two models, terming these the "operational" and the "cognized."

The operational model is that which is constructed by the analyst through specified operations consisting of observations and measurements of phenomena and their covariations. This model, despite its likely deficiencies, is taken by the analyst to represent the material aspects of the group, and its physical and social environment. In the Tsembaga case the environment was represented as a complex system of relationships composed of two major subsystems, distinguished from each other by differences in the materials exchanged in each and by partial discontinuities in coherence, but affecting each other through mechanisms available to direct observation. The relations of the Tsembaga with the other species with which they shared their territory, were represented as the local or ecological system. Their relations with other Maring groups occupying other territories were represented as the regional system. Both of these major subsystems could have been analyzed into subsystems of a lower order.

Such operational models are constructed without reference to the conceptions of their environments and themselves entertained by the actors. They are simply abstract models adopted by observers to establish, as best his operations permit him, the nature of a portion of the material universe in which the actors act. But it is homeostasis in the operational model, expressed as the maintenance of critical variables within empirically defined goal ranges, that we take to indicate adaptation, regardless of the understandings, values, or wishes of the actors.

On the other hand, it is necessary, if we are to understand the role of native understandings in adaptation, to construct models of these understandings. I refer to these as "cognized models." Many difficulties, methodological, epistemological and ontological beset the construction of such models and it is well to mention before proceeding that anthropology has by no means solved them. Much of what follows, therefore, is highly speculative, and should be taken as such, although this will not always be indicated by my language.

It is obvious that cognized and operational models are likely to be overlapping but not coextensive. An operational model is likely to include material elements, such as nitrogen-fixing bacteria, of which the actors may not be aware, but which affect them in important ways. On the other hand, cognized models often include elements, such as supernaturals, whose existence cannot be demonstrated by observation or measurement.

It is sometimes the case that elements peculiar to one model are isomorphic with elements peculiar to the other. For instance, the behavior of certain spirits, whom the Tsembaga say occupy the lower portions of their territory, and the consequences of their behavior, correspond closely to that of the anopheles mosquito whom the Tsembaga do not understand to be a malaria vector. But elements, and relationships among elements, in the two models need not always be identical or isomorphic. The two models may differ in structure as well as in content.

This is not to say, of course, that cognized models are merely less adequate representations of reality than the operational models we attempt to construct. The accuracy of cognized models, although by definition they must be taken by those who entertain them to be accurate representations of the world in which they live, is really a secondary matter as far as adaptation is concerned. The primary question concerning cognized models is not the extent to which they conform to "reality" (i.e., are identical or isomorphic with operational models), but the extent to which they elicit behavior appropriate to the material situation of the actors. The appropriateness of behavior may be assessed by ascertaining its effects upon the homeostasis of one or more of the vital variables included in corresponding operational models. We are dealing here with what Pask (1968) has called hybrid systems composed of "word systems" (native understandings as we are able to ascertain them) and "thing systems" (operational models).

It is certainly the case that accurate representations of material conditions often form one of the bases for appropriate, or adaptive, behavior. But not always. In some cases, indeed, it is unlikely that people would do things that need to be done if they knew what they were doing, that is, if they understood the material contexts and consequences of their actions. It is not merely that adaptive behavior may be associated with understandings which do not accurately reflect material conditions, but that some adaptive behavior may be elicited only by such understandings. To call them misunderstandings or inaccuracies would be to misinterpret them. Cognized models are to be understood as part of populations' means for adjusting to their environments. They are guides to action and should be assessed as such, and some of their apparent inaccuracies may be demanded by their function. For instance, Maring local groups may initiate warfare only once during their protracted 10-20 year ritual cycles. During a major portion of the cycle a truce, both commenced and terminated by spectacular rituals, is in force. While it might be to the advantage of a strong local group to attack a weaker neighbor in violation of the ritual truce, such attacks seldom occur. Although there have been exceptions, Maring local groups are unlikely to violate ritual truces because their members fear that should they do so they would not receive the support of their ancestors and their bellicose enterprise would fail. It may be argued that ritual truces are advantageous to the Maring as a whole because through them the occurrence of warfare is limited to frequencies which do not endanger the survival of the population as a whole but which do permit ecologically and demographically more successful or more pressured groups to expand at the expense of those which are less so. This advantage is secured by masking from some local groups an awareness of where their own immediate material interests lie and by providing them with an awareness of non-existent entitites. Awareness, as Pask has noted, involves a correlation between word systems and thing systems, but it is not necessarily the case that a relationship of direct representation is the most advantageous form of correlation.

IV.

I have suggested elsewhere that the place of cognized models in the material relations of populations is analogous to that of "memories" in the controls of automated systems of material exchange and transformation. In an automated system, signals concerning the states of variables are received in the memory where they are compared to "reference" or "ideal" values or ranges of values. In response to discrepancies between the values of the signals and the reference values, programs are initiated which tend to return the value of deviating variables toward states approximating reference values or reference ranges. These corrective programs are, ideally, discontinued when the discrepancy between the signal emanating from the system component and the reference value is eliminated (Powers, Clarke and McFarland, 1960).

It is reasonable to assume that people also compare the states of components of their environments, as these states are indicated by signs, with their notions of what these states should be (reference or ideal values or ranges) and initiate corrective programs in response to discrepancies. For example, the timing of Maring ritual cycles is a function of the dynamics of pig herds. A local group signals that it is entering into a truce by sacrificing all but its juvenile pigs to its ancestors in partial payment for their assistance in the hostilities just concluded. It may not again initiate hostilities until it has completed payment to the same supernaturals through another series of large scale sacrifices. The number of animals required for such sacrifices are not specified. There is prestige to be gained in the eyes of members of other local populations by sacrificing large numbers of pigs and this prestige can, to some extent, be converted into military support. But large pig herds are burdensome because they must be fed, and nuisances because the beasts invade gardens. When women's complaints concerning the labor they must expend in feeding pigs and the nuisance of garden invasions by pigs exceed a reference value, the limits of tolerance of a sufficient number of people to shape a consensus, a corrective program in the form of pig festival is staged, during which the pig herd is drastically reduced. Garden invasions and women's complaints about pigs are reduced to zero or nearly so, and at the same time obligations to ancestors are fulfilled, permitting the celebrants to initiate hostilities once again.

come as you like..
come as you are..
Jack in the box..

The strategy of regarding the relationship between cognized and operational models to be that of controls to material systems has the advantage of providing us with a framework for inquiring in detailed ways into the adaptiveness of ideology. Among the questions we might ask are the following:

1. What is the relationship between (culturally recognized) signs and the environmental processes they are taken to indicate? Is it the case, for instance, that soil depletion is indicated by signs (detected) where there has been only a slight change in soil structure or composition, or only when the process is well advanced? We may also ask about the sensitivity of the operations through which such signs induce responses. Among the Maring, for instance, it is necessary for a consensus that there is error with respect to pig herd size to develop before corrective actions are initiated. On these grounds alone regulatory operation is likely to be sluggish. In contrast, a Polynesian chief can respond to signs of error or deviation without waiting for the formation of a consensus.

2. What is the relationship between reference or ideal values, which are likely to reflect directly peoples wants or "values" rather their needs, and the actual material requirements of the local population, the larger regional population, or the ecosystem as a whole? More formally, what is the relationship between the reference values or ranges of values in the cognized model and the goal ranges of the corresponding operational model? Is it the case that reference or ideal values lead a people to exceed the goal ranges of the operational model or do they lead them to initiate corrective programs before goal ranges are exceeded? It may be noted here that measurements undertaken in the field suggest that neither the desire for prestige nor their fear of ancestors lead the Maring to raise more pigs than their territories can support.

3. We may ask if corrective programs, whether they are undertaken with respect to an awareness of actual material relationships or of goals, do in fact correct the deviations in response to which they are initiated. If it were not for the fact that the very fluctuations in the size of pig herds are important in the regulation of warfare frequency, it might be said that Maring pig festivals over-correct, reducing the herds from too large to too small.

We may nevertheless note that there is considerable room for malfunction in signal detection, in the setting of reference values, and in correction, to say nothing about lag between detection of error and correction, distortion of signals and so on.

V.

Our illustrative material underlines the point made earlier that it would be erroneous to take the general adaptations of social groups to be nothing more than the maintenance of homeostasis among heaps of discrete variables. The relationships among special adaptations, that is to say among mechanisms regulating these variables, must be regulated and general adaptations must take on the form of hierarchies of regulatory mechanisms.

There may be some ambiguity in the notion of control hierarchies, and it is well to make explicit that I am referring, simply, to controls at various levels in hierarchies of inclusiveness, that is hierarchies of systems, subsystems, subsubsystems and so on. For example, if a primitive horticultural community together with its territory were taken to be a system we might be able to discriminate within it, by virtue of partial discontinuities in systemic coherence and by the existence of discrete regulatory mechanisms, a number of major subsystems, such as an enculturation subsystem, a military subsystem, and a subsistence subsystem, and so on, and within these we perhaps could identify subsystems of lower order. For instance, the subsistence subsystem might include production, distribution and consumption subsystems, each composed of variables in more coherent relations with each other than with those in other subsystems and each possessed of more or less discrete regulatory mechanisms.

In the previous section we suggested that each of these regulatory mechanisms consists, at least in part, of a cognized model which includes an image of the regulated domain, corrective programs and a mechanism sensitive to error as well as reference values. The domains of controls of the lowest order include the concrete variables of biology and environment. The domains of higher order controls include the outputs of the controls of next lower order for which it sets output reference values. For instance, a production quota (an output reference value) is not likely to be set within a production system, but to emanate from the controls of a more inclusive system (here labelled a subsistence system) which regulates relations among the outputs and demands of its several subsystems.[2]

Perhaps we could discriminate in controls at all levels immediate, working and long term memories (Pask 1968), and also what Bateson has called learning II or deutero learning and in some cases learning of an even higher order. But it is not with hierarchies in this sense that I am concerned at the moment. I am concerned, rather, with relationships between controls at various levels in hierarchies of inclusiveness. There are several characteristics of control hierarchies that are of interest to us here.

1. Coherence

It is likely that higher order controls operate more sporadically than those of lower order. Such sporadic, and perhaps lagging operation allows lower order controls to do what they can to correct error before more inclusive systems are brought into operation. For instance, among some primitive horticulturalists the population of a local community is continually redispersed over available land in accordance with rules of filiation, land tenure and usufructory rights. All of these conventions can be regarded as the corrective programs of low order controls operating with respect to some reference value. While this value may be a notion of the "proper" man-land ratio, it may also be tolerance for some possibly density-dependant irritation, such as intra-group bickering or witchcraft accusations (Vayda and Rappaport 1967). It is only when these low order controls are no longer capable of reducing the discrepancy between the deviation signals and reference values that expansive warfare is triggered by higher order controls acting as back-ups. In more general terms it may be argued that the hierarchical arrangement of regulatory mechanisms, operating with increasing lag and sporadicity, may inhibit the communication of local disruption to wider portions of the system. So far as I know no measure of systemic coherence, the extent to which a change in the state of one variable effects changes in the states of others, has been devised, but it may nevertheless be suggested that too great a degree of coherence can be as lethal as too little, and that systems of different sorts, machines, organisms, societies, ecosystems, are viable within different ranges of coherence. I would suspect that the degree of coherence necessary for the proper functioning of a machine or an organism would be lethal for a society, and that within societies or communities lower order systems are, and perhaps must be, more coherent than those of higher order. Along these lines it may be the case that controls in lower order systems not only operate more continuously than higher order controls, but with narrower reference ranges, that is, less error is tolerated before corrective programs are initiated.

It seems to be the case that increasing coherence in more inclusive systems is a concomitant of evolution, and it may be that the degree of coherence in contemporary affairs is approaching the lethal. As Vickers (1968) wisely noted in his contribution to last year's conference, our problem isn't that we are not one world, but that we are, that we can neither regulate the world system nor decouple from it and that, therefore, disruptions are both more likely to occur and more likely to be transmitted with great speed from their points of origin to remote places. But such obvious dangers seem hardly to have been recognized. Increased coherence has often been regarded as a good in itself and policy making frequently seems to aim deliberately toward the achievement of states of "hyper-integration." it is well known, for instance, that colonial powers have almost invariably sought, often in the name of "development" or "modernization," to couple previously autonomous systems to a world economic system. In some instances such policies have been pursued even in the absence of economic justification, and thus seem gratuitous. At any rate, the resulting replacements of local homeostases by dependence upon world markets have sometimes been disastrous. It could be argued, of course, that the envelopment of local systems by the world wide system has been inevitable, but it can nevertheless be asserted that the managers of this process have generally been guilty of shortsightedness or indifference concerning the outcomes of the policies they have put into play and have done little to preserve any aspect of local homestases against the danger of disruptions of remote origin. Indeed, some aspects of colonial policy seem to be almost deliberately designed not only to couple local systems to the world system, but to destroy local homeostatic mechanisms. The unimpeded access to native peoples granted missionaries is an example. The religious practices of many primitive peoples seem to play an important part in maintaining both social and ecological equilibria. These practices should be presumed to be well adapted to these functions inasmuch as they are in most instances the products of continuous evolutionary development. Christianity, a product of advanced civilization, can make little or no contribution to the adaptation of most native peoples. Indeed, it can only disrupt them.

2. Simplicity of Higher Level Controls

We have noted that the regulatory operation which takes place in higher order controls is not the regulation of the many variables comprising the lower order systems, but simply of the outputs of the lower order systems and the relation of these outputs to each other. This suggests that in primitive societies at least the phenomena directly subject to higher order controls are likely to be less varied and complex than the phenomena subject to lower order controls. This in turn implies that cognized models forming the memories of higher order controls are likely to be simpler in structure and contain fewer components than cognized models associated with lower order controls. For instance, whereas the cognized model of the production system of a horticultural people will surely include detailed knowledge or putative knowledge of a wide range of such phenomena as soil, weeds, crops, weather and horticultural techniques, and some theory concerning the complex relations among these phenomena, the cognized model of the subsistence system, the system of next higher order, need only include knowledge or putative knowledge of the outputs and capacities and necessary conditions of existence of the production and other of its subsystems, and the simpler relations prevailing among these fewer variables.

To fulfill its functions adequately a higher order control need not "know" all or perhaps very much about the operations of the lower order systems subject to it. It need be aware only of their outputs, capacities, and within broad limits the conditions necessary for their continued existence. But it also must presume that within these limits lower order control mechanisms do operate, and it must rely upon them. We may be reminded here of Bateson's green thumb metaphor. Great gardeners, political leaders and psycho-therapists operate at high control levels. They are successful not because they are aware of all the details of the lower order systems with which they deal, but because they understand that their own high level control operations (which are directed toward maintaining coherence among a number of lower order systems) presumes the operation of lower order homeostatic mechanisms, and because wisdom or knowledge leads them to respect or even to fulfill the conditions necessary for the continued operation of these lower order control mechanisms.

Increased knowledge of the elements regulated by lower order controls, and the relations among them, does not necessarily, or perhaps even usually, lead to more effective regulation. The temptation to meddle, to subject directly to a higher order control the variables ordinarily regulated by lower order controls, probably increases with increased knowledge. But a little bit of knowledge is a dangerous thing. An awareness of the principles of homeostasis does not supply the details of any particular homeostasis, and knowledge of some of the details does not provide knowledge of all. A number of attempts at ecosystem regulation by men informed by some, but apparently insufficient, knowledge of the systems to be regulated have ended disastrously. It could be argued that increased knowledge of ecosystems results in decreased respect for them, and thus leads men to be guilty of, and subsequently to be punished for, what might be called ecological hubris. It is perhaps the case that knowledge will never be able to replace respect in man's dealings with ecological systems, for, as we have already observed, the ecological systems in which man participates are likely to be so complex that he may never have sufficient comprehension of their content and structure to permit him to predict the outcome of many of his own acts. Any theory for acting in systems which the actor doesn't understand must include a large measure of respect for endogenous regulation.

3. Systems, Social Groups and Purpose

Our discussion of control hierarchies has taken systems and their subsystems to be composed of clusters of variables discriminated from other clusters by partial discontinuities in coherence. But at one level of inclusiveness or another systems become coextensive with particular individuals or social groups, and special problems concerning purpose arise.

Some years ago Karl Deutsch (1949) suggested that we may be able to distinguish several orders of purposes, and that these might be associated with systems on all levels of inclusiveness. First order purposes are to be associated with systems composed of variables together comprising less than total organisms, and are identified by such terms as reward, adjustment and so on. Second order purpose is individual self-preservation, while third order purposes are to be identified with the preservation of social groups of increasing magnitude and inclusiveness. Beyond these we might, according to Deutsch, note fourth order purposes associated with, perhaps, the preservation of life in general, or of order in the universe. The preservation of ecosystems could be regarded as either a third or fourth order purpose.

It may be suggested, then, that hierarchies of purposes are characteristic of control hierarchies, and further, that there is considerable opportunity for regulatory malfunction when higher and lower level systems are coextensive with inclusive and included social groups.

It would seem to be the case, in other than extraordinary circumstances, that as far as informing the behavior of participants is concerned, the purposes of the most immediate system is more cogent than the purposes of more inclusive but more remote systems. A higher wage for themselves was more cogent to New York's garbage collectors in their decision to strike recently than the possibility that garbage accumulating on the streets would encourage epidemic in the city, and the possibility of higher profits has been more compelling to steel management in the United States than the effects that increased prices might have on inflationary trends in the general economy.

From where anyone sits the world looks like a zero-sum game and it is thus likely that relations between various groups subject to the same regulatory mechanisms (for instance, labor and management) are always characterized by some conflict. One of the goals of such conflicts is usurpation, the elevation of the purpose of one's own subsystem to a position of preeminence in a more inclusive system. The attitude that justifies usurpation is nicely summed up in the phrase "What is good for General Motors is good for the United States." A similar attitude has generally been characteristic of recent man in his relations with his physical and biotic environment, for as social groups have become larger and more differentiated ecosystems have become more and more remote and their purposes less compelling. But needless to say, the world is not a congerie of zero-sum games, and what is good for General Motors is not likely to be good for the United States for an indefinite length of time. The major subsystems of complex societies have become sufficiently powerful to capture and subsequently subvert or destroy the larger social and ecological systems of which they are a part, and any social system must develop mechanisms through which its imperialistic subsystems can be "kept in their places." But the problem of developing such means is fraught with contradiction. In societies such as our own it may seem that we need to devise more elaborate political and economic regulatory mechanisms, but experience informs us that such mechanisms, for instance federal regulatory agencies, are likely to become the instruments of the very subsystems they were meant to regulate.

It may be suggested that the more discrete such agencies are, that is the more closely they are identified with particular bodies of personnel, the more vulnerable they are to capture by one or another of their subsystems. But the better they have been insulated against possible capture the more invulnerable they are should they be captured. It also seems to be the case that control mechanisms, when they are identified with particular bodies of personnel, bureaucracies, develop purposes of their own. These are likely to become rigidly defined, and are unlikely to be identical with those of the systems being regulated. The development of elaborate special control mechanisms may open unparalleled opportunities for disorder, even chaos.

In summary, we may be reminded that Bateson has suggested that it is not inappropriate to refer to man's purposeful degradation of the systems in which he participates as immoral, especially when such degradation seems to be willful, or almost so, and that immorality seems to have a structure. The three types of malfunction described in this section, "hyper-integration," "meddling" and "usurpation" can be regarded as three varieties of structural immorality. There are doubtless others, as for instance, attempts to reduce coherence below viable levels. The states rights and neighborhood school movements, attempts to preserve local patterns of segregation by partial decoupling from the larger system, might serve as examples.

VI.

From immorality we may turn to sanctity. Before proceeding to the part that sanctity may play in human adaptation, a discussion of sanctity itself is necessary.

I have argued elsewhere (in press) that sanctity is to be understood in the light of the peculiarities of human communication. Human communication is symbolic communication, that is, in human communication signals are not intrinsic to their referents, but only conventionally related to them. The advantage of symbolic communication, that it frees signals from the constraints of the here and now and permits discourse on past, future, distant, imaginary and wished for events, has been widely discussed, some scholars even claiming that the emergence of the symbol can be compared in importance and novelty to the emergence of life. But considering the fundamental importance of symbolic communication in human affairs little attention has been paid to a problem concomitant to its very virtues: Any mode of communication that employs symbols can accommodate lies. Lying seems possible if and only if a signal is not intrinsic to its referent. Lies are thus transmitted by symbolic communication and symbolic communication only. Although there seems to be some limited use of symbols by infrahuman animals, man's reliance upon symbolic communication exceeds that of other animals to such an extent that it is probably for man alone that the transmission of false information becomes a serious problem.

His very survival may be involved. It is plausible to argue that the survival of any population depends upon social interactions characterized by some minimum degree of orderliness and coherence, and that social orderliness and coherence depend upon communication. But communication is effective only if the recipients of messages are willing to accept, as being in at least some minimum degree true, the messages they receive. If they are unwilling or unable to give credence to received information, it is plausible to assume that their responses to particular stimuli will tend toward randomness. To the extent that actions are random they are unpredictable and are thus likely to elicit further apparently random responses on the parts of other actors. Randomness begets greater randomness, and orderliness and coherence could be reduced to such a degree that population could not fulfill its biological needs. Credibility gaps are extremely dangerous, and societies which rely upon symbolic communication, that is to say all human societies, are faced with the problem of assuring some minimum degree of credibility and credence in the face of the ever present possibility of falsehood.

It is true, of course, that some messages present no problems. Some contain logically necessary truths and others can be assumed to be true from experience. But the preponderance of messages upon which social actions rely are concerned with systemic states and their changes and are likely to be neither logically necessary nor subject to validation from experience. Furthermore, it is often, if not usually the case that the recipient of a message upon which action must be taken is not in a position to verify the message even if means of verification exist, and for many messages important in the working of societies they do not. For instance, Maring men communicate their commitment to assist another group in future warfare by dancing at its festival. Hosts thus judge the extent to which they will receive military support by the size of visiting dance contingents. But there is no procedure by which they can verify the message which the visiting dancers constitute. How then can they base weighty policy upon such messages?

It is interesting to note that messages concerning military support are transmitted by the Maring in the course of religious rituals, rituals that have a purpose, to honor dead ancestors, distinct from the messages transmitted within them. Since this is the case it is plausible to assume a belief, on the part of at least some of the participants, in the existence of deceased ancestors. Indeed to assume otherwise would be to make nonsense of the proceedings. We can thus say that fundamental to Maring religious beliefs are such propositions as "Deceased ancestors persist as sentient beings."

Now such statements are neither logically necessary truths, nor are they subject to empirical confirmation or disconfirmation. Yet they are taken to be unquestionably true. Indeed, paraphrasing some theologians and philosophers (Bochenski 1965, Hick 1963) I regard this characteristic, rather than substantive content, to be criterial of religious discourse, and since religious discourse is sacred discourse I take this characteristic to be criterial of sanctity as well. I am asserting that sanctity is the quality of unquestionable truthfulness imputed by the faithful to unverifiable propositions. As such it is not ultimately a property of objects, or putative objects, but of discourse about them. It is not, for instance, the divinity of Christ, but the assertion of his divinity, which is sacred.

While the sacred inheres ultimately in such non-material propositions as "The Godhead is a trinity," setting them above legitimate doubt, it penetrates (sanctifies) sentences concerning material objects and activities. Theological discourse may serve as the vehicle for transporting sanctity from an ultimate sacred proposition such as "The Lord our God the Lord is One" to sentences such as "Eating pork is evil," or "Pork may not be eaten," but the connection may be merely an association in time and space in rituals. Thus, such messages as "we will lend you military support" when they are transmitted in religious ritual, and thus sanctified, are taken to be true, or at least sufficiently true to serve as the bases of social action. In other words, sanctity, although it inheres ultimately in unverifiable statements, is socially important as a meat-statement about statements of a partially material nature, such as "eating pork is evil," or a fully material nature, such as "we will lend you military support." Statements all of whose terms are material may logically be amenable to verification, but as we have already observed, the recipients may be in no position to verify them. However, to sanctify statements is to certify them.

It would be naive to assert that sanctification insures the truth of messages, although it may help. But it can be argued that people are more likely to accept sanctified than unsanctified messages as true, and insofar as they do their responses to sanctified messages, responses likely to involve the coordinated action of social groups, will tend to be non-random and therefore predictable. That messages be at all times in fact true is not necessary. What is necessary is that social interactions be in some minimum degree orderly, and the acceptance of messages as true, whether or not they are, contributes to this orderliness. Indeed, it may make this orderliness possible. Following a lead of Bateson's (1951) it may even be claimed that belief, insofar as it results in non-random actions which lead to predictable responses, creates orderliness by creating truth. To put this differently, many of the messages crucial to the maintenance of social orderliness and coherence fall into the class of messages the validity of which is a function of the belief in them (Bateson op. cit.). Belief in them, we have argued, may be a function of their sanctification, and we might claim that, as far as informing behavior is concerned, sanctity forms an additional member of the set which also includes the necessary truth of logic and the empirical truth of experience.

VII.

Let us return to control hierarchies. We have already noted that the sanctification which flows from ultimate sacred sentences containing non-material terms can envelop sentences consisting entirely of material terms. There are probably some general constraints upon the substance of sentences that may be sanctified, and I shall touch upon them later. But it is surely the case that sanctity can and does invest the sentences of which cognized models and their corrective programs are composed.

In this regard it may be suggested, although no studies, so far as I know, have been made in just these terms, that cognized models in higher order conrols are likely to contain more abstract and fewer concrete terms than do those of lower order controls. While this feature of control hierarchies is probably more evident in primitive societies, it is to be noted in modern societies as well. The terms of economics, for instance, which may include such notions as "free enterprise" and "corporate ownership" are less concrete and carry a stronger moral connotation than those of agronomy, and the contents of the cognized models with respect to which community coherence is maintained within viable limits are likely to include yet more abstract terms, such as honor, prestige and freedom, gods, ghosts and demons. In other words, the higher the level of control, the greater the importance of moral and mythic terms in the cognized model.

Such a progression from the concrete to the abstract is expectable on several grounds. It could be argued simply that the relations among such concrete things as soils, plants and agricultural techniques put more constraints upon their conceptualization than does coherence among systems place upon its conceptualization. But more important, and more germane to our present discussion is a matter that we raised earlier. The range of differences possible in the regulation of the components of a low order system, such as a production system, is probably narrower than that which is possible in higher order systems. The physiological requirements of cultigens, for instance, probably put greater restraints upon agricultural practices and the cognized models associated with them than the necessity to maintain coherence between production and consumption systems places upon procedures of distribution, etc., and the cognized models associated with them. Thus, to use an example from modern societies, Soviet wheat agriculture probably resembles American wheat agriculture more closely than the Soviet economic system resembles the American economic system. Since there is greater latitude or freedom in the maintenance of coherence between systems than in regulation within systems, it may be suggested that the higher its level the more arbitrary the particular control mechanism. That is, the particular control mechanism that does operate is only one of a number of possible ways in which the proper degree of systemic coherence can be maintained. However, any society must choose only one or a limited number out of the possible range if chaos is to be avoided. But the arbitrariness of the selection is possibly available to the understanding of the actors, i.e., they can conceive of other ways to maintain comparable levels of systemic coherence, and those who are subject to a control are not likely always to feel that it is operating in their immediate interests. Arbitrariness invites criticism and recalcitrance. However, to phrase regulation in moral or mythic terms, that is, to sanctify it, is to place it beyond criticism and to define recalcitrance as sacrilege. Sanctification, in other words, transforms the arbitrary into the necessary, and regulatory mechanisms which are arbitrary are likely to be sanctified.

A related point may be made in terms of another sense in which we may speak of sanctity and abstractness in control hierarchies. The systems with which we are dealing are "hybrid systems" in Pask's (1968) terms, for they consist of a.) bodies of discourse, which we have labelled cognized models, b.) material objects, and c.) the activities undertaken with reference to the cognized models but affecting the material objects. It thus seems to be the case that the structure of control hierarchies is "heterarchical," to use another of Pask's terms. The implication is that the level of discourse embodied in cognized models is likely to correspond to the level of control.

This possible feature of control hierarchies is of considerable significance with respect to a point already mentioned: the establishment of the output reference values of a regulatory mechanism is not a function of that regulatory mechanism but of one of higher order. It suggests that these reference values cannot be derived from the function or logic of the systems in which they operate. But since the reference value of a lower order control is an output of a higher order control it presumably may be deduced from the cognized model and input of the higher order control. In other words, reference values either are, or are something like, theorems in the higher order systems from which they emanate but either are, or are something like, axioms in the lower order systems in which they operate. Thus, the higher order controls, which we have discriminated in terms of the greater inclusiveness of the domains subject to them, may also be what Bateson (1968b), following Whitehead and Russell has termed "of higher logical type," and Gödels theorem, or something like it, may operate between controls on different levels. (I have used the phrase "something like" because the logic of the discourse with which we are concerned may not be amenable to rigorous formalization.)

This obviously can result in problems when the lower order system into which the reference value enters from above is coextensive with an individual or social group with purposes of its own. Whereas most men are willing to accept such axioms as "the shortest distance between two points is a straight line" as the basis for certain of their behavior, they are likely to be more dubious about accepting calls to fight in distant wars or production quotas the rationale for which they do not understand and do not believe to be in their own interest (i.e., in accord with their own purposes).

Sanctification again plays an important role. On the one hand recalcitrance may, as we have already noted, become sacrilegious, and sacrilege implies punishment. But no society thrives on punishment, and sanctification also operates positively here in a way which I believe to be both more interesting and more important. We may recall an example already presented in a different context. It will be remembered that Maring groups, even when they are more powerful than their enemies, rarely launch attacks in violation of ritual truces. Although their material advantages might be well served if they did so, they do not take this to be the case because they believe that their deceased ancestors would not assist them, and that their undertaking would therefore fail.

This peace keeping operation depends upon the nonmaterial nature of such components of higher order cognized models as spirits of deceased ancestors. Through the invocation of unquestionable propositions concerning spirits whose very existence cannot be verified, which is to say cannot be falsified, the purpose of a higher level system, the entire Maring population, is made to appear to be the purpose of one of its subsystems, a local territorial group. The societies of ancient Mesopotamia, organized economically around the temples of gods whose well being was conceived by his servants, the entire community, to be a necessary precondition for their own prosperity could serve as another example, as could those archaic societies in which there was conceived to be a correlation between the health and prosperity of the king and the state of the crops. In more modern societies such morally laden and sanctified terms as "honor" may function in a similar way. In general terms, then, through sanctification the purposes of higher order systems may be injected into lower order systems. As such, sanctification operates as a counterthrust to attempts on the part of subsystems which are also social groups to promote their own purposes to positions of dominance in higher level systems. In slightly different terms, sanctity helps to keep subsystems in their places.

VIII.

It is necessary, before taking up other aspects of sanctity's possible role in adaptation, to consider the foundations upon which sanctity rests.

We needn't take up the question of the origin of sanctity. Suffice it to say that on the grounds of distribution among living peoples, and on the grounds of clear inference from archaeological remains of great age (Neanderthal), the idea of the sacred must be of great antiquity. Indeed, I have suggested, following arguments advanced by Erickson (1968) and Waddington (1961), that its emergence and elaboration was bound in a relationship of mutual causality to the development and elaboration of symbolic communication (Rappaport: in press). But if it is true that the operation of control hierarchies is dependant upon their sanctity, and if this sanctity flows from ultimate sacred statements, there is a more important question for us here. Upon what does the unquestionable status of sacred statements rest and how is this status maintained?

In some societies force is employed. But I wish to delay the consideration of such societies. Where coercion is relied upon it is coercion, and not sanctity, upon which the operation of the control hierarchy depends. I wish to confine discussion at this point to systems which are distinguished by the absence or virtual absence of institutionalized differences in coercive ability between individuals or social segments, a state of affairs not uncommon among horticultural and hunting and gathering peoples.

It is in such egalitarian societies that the importance of religious experience in providing both an epistemological basis for sacred propositions and a mechanism for maintaining their unquestionable status is clearest.

Although secular information of direct social import is transmitted within many religious rituals, it is also the case, as we have already observed, that religious rituals (virtually by definition) are undertaken, implicitly or explicitly, with respect to sacred propositions. While participants do not always experience strong emotion in the course of a ritual, it is probably the case that ritual participation does affect the emotional states of the faithful at least some of the time. While some religions emphasize ecstasy, others cultivate serenity and yet others involve "feelings of awe." All that seems to be common to religious experience generally is that it is ineffable, that is to say, non-discursive.

The importance of the non-discursive aspect of religious experience cannot be exaggerated. Inasmuch as the experience is non-discursive it cannot be falsified. The truth of such an experience is sufficiently demonstrated by its mere occurrence. Moreover, it cannot be discredited by the discourse of the conscious mind. It happens and it is felt, and it therefore carries with it a subjective quality of truth. And since the experience is a response to the enunciation of a sacred proposition, or occurs in a place or in a ritual associated with such a proposition, that proposition partakes of the same sense of truth. I am suggesting, in other words, that ultimate sacred propositions are taken to be unquestionably true because their enunciation in ritual or in the symbols kept in holy places elicits from the faithful a non-discursive, and therefore unfalsifiable, affirmation. Moreover, when this affirmation is given by participation in a public ritual it is thereby transformed into a discursive statement (which might be rendered "I or we affirm the sacred proposition") amenable to transmission to other participants. We have already argued that the latter are likely to accept such messages as true because of the sacred context in which they are transmitted. The circularity of this operation needn't trouble us because it doesn't trouble the faithful. Indeed, they are unlikely to be aware of it. Ritual, thus, not only invokes in the participants private religious experiences, it provides a mechanism for translating these private experiences into messages of social import and also a means for certifying these messages.

We may now suggest the outlines of an encompassing cybernetic loop. Inasmuch as the religious experience is an intrinsic part of the more inclusive emotional dynamics of the organism, and inasmuch as the emotional dynamics of an organism must be closely related to its material state, it is plausible to assume that religious experiences are affected by material conditions. But the latter are, particularly in primitive societies, in some degree a function of the operation of the control hierarchy which the religious experience itself supports. Thus, the willingness, indeed the ability, of the members of a congregation to affirm through religious experience the ultimate sacred propositions which sanctify the control hierarchy may be in considerable measure a function of the effectiveness of the hierarchy in maintaining equilibria in and among those variables which define their material well-being in the long run, and thus adaptation.

IX.

In the last section I employed the phrases "in some degree" and "in considerable measure." In part these expressions merely indicate the speculative nature of this formulation, and the vagueness of some of its terms, but they are also meant to carry a heavier burden.

First, I wished to suggest looseness of coupling between the states of variables defining adaptation on the one hand and willingness or ability to give non-discursive affirmation to sacred propositions on the other. Such coupling has to be loose, and lagging in operation, if the system is not to succumb to disruptions attendant upon over-coherence, that is, if it is not to be responsive to short-run parochial discontents. Sanctification must be allowed to support programs apparently detrimental to the low order purposes of some, or even all, of those subject to them for more or less protracted periods if higher order purposes are to be served. Lag permits distinctions to be made between short-term hardships required by the fulfillment of higher order purposes and those resulting from the effects of deep seated regulatory error, such as environmental degradation. It may be that the duration of the lag is related to the type and intensity of hardship, but as time goes on more and more of those subject to the hierarchy will find conditions sufficiently intolerable to make them, first, unable to affirm through private experience the sacred propositions, and perhaps later, unwilling even to participate in ritual. Thus sooner or later regulation itself must be adjusted if men are not to seek new gods.

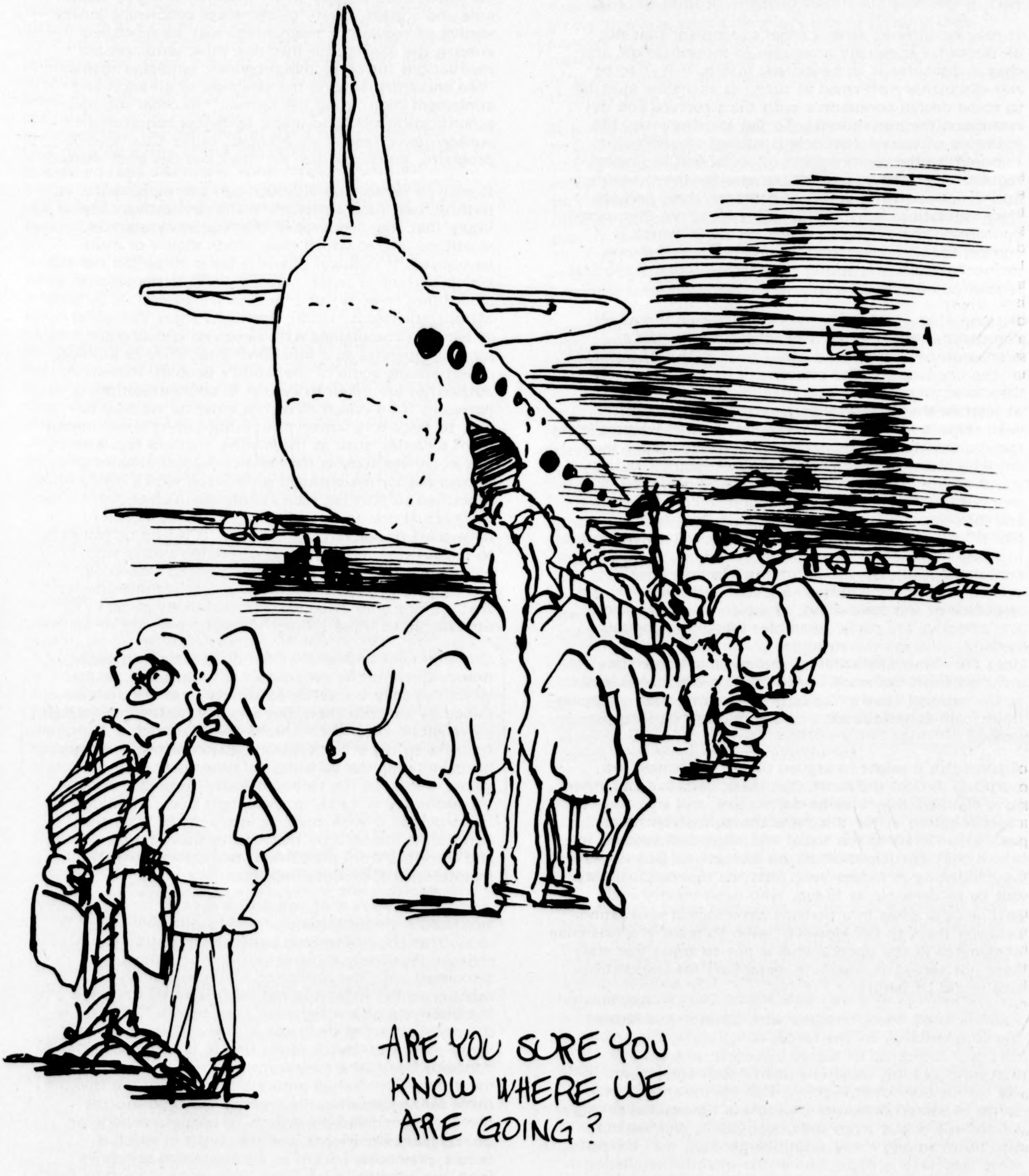
It is, of course, possible to make such adjustments without challenging ultimate sacred propositions. Since these propositions are propositions, and since they are likely to contain no material terms they do not constitute specific directives nor are they irrevocably bound to particular social forms. This means that their association with particular directives or institutions is not intrinsic, but is, rather, the product of interpretive acts. Any product of interpretation allows reinterpretation, but reinterpretation does not challenge ultimate sacred statements. It merely disputes previous interpretations.

Reinterpretation possibly occurs in all of the cognized models in the hierarchy. Since reinterpretation can be considered to be learning it becomes important to inquire into the extent to which such models are capable of learning of higher type (Bateson 1968b). Surely they must differ in this respect.

A possible malfunction in sanctification should be noted in this context. It seems sometimes to happen that sentences directly involved in regulation (thus containing material terms and sometimes cast in the form of explicit directives) are taken not merely to be sanctified by ultimate sacred propositions but to be ultimate sacred propositions. When this occurs regulation becomes highly resistant to adjustment through reinterpretation with, perhaps, disastrous results. A possible modern example of such confusion in "the level of sanctity" to which a sentence is to be assigned is the resistance of the Catholic Church to birth control. To an outsider it appears that the legitimization of birth control could be accomplished through reinterpretation, that is, without any challenge to dogma.

There was a second important reason for introducing indeterminate language into the general cybernetic scheme. Our discussion so far has implied that the function and nature of religious experience plays little or no part in shaping other components of the system which it helps to regulate. I don't believe this to be so.

What I have been calling religious experience is, I think, at the very least a species of what Bateson and others would call aesthetic experience. In fact, Bateson, in his prefatory paper and elsewhere (1967, 1968a), and Susan K. Langer (1953) have both argued or implied a connection between the aesthetic and the sacred and both have implicated in this connection non-rational, non-discursive, processes. Bateson argues that art is part of man's quest for "grace." He tells us that Aldous Huxley used this term to designate a quality of naivete and simplicity inhering in both his conception of God and in the behavior and communication of animals. This behavior and communication, being dominated by primary processes, is free of deceit and purposefulness, products of reason. To Langer art is "significant form," and its significance is "that of a symbol, a highly articulated sensuous object, which by virtue of its structure can express the forms of vital experience which language is peculiarly unfit to convey (p. 32)." She means



ARE YOU SURE YOU KNOW WHERE WE ARE GOING?

by "vital" to refer to the "dynamism of subjective experience (p. 31)," which she then identifies with feeling and emotion. Later, following Cassirer, she suggests, as have many others, that the "powers" that personified inhabit myth and cosmology are constructed out of these non-rational processes, but adds that their existence in the unconscious is brought to awareness through the experience of art, particularly participation in dance which she believes to have originated in religious ritual, and which remains an important part of the religious rituals of many peoples (p. 182).

It may be inferred from Langer's argument that not all discourse is equally amenable to sanctification, and that if discourse is to be sacred, that is, if it is to be non-discursively affirmed as such, its structure must be in some degree compatible with the structure and dynamics of the non-rational. To put it differently, the structure of sacred discourse is subject to constraints imposed by the requirements of social and ecological regulation on the one hand, but also by the structure and dynamics of non-rational processes (and perhaps their regulation) on the other. Questions are then raised concerning the extent to which discourse which is compatible with the structure and dynamics of non-rational processes is appropriate to social and ecological regulation, and vice versa.

Bateson suggests that the two constraining forces are compatible. Whereas we may infer from Langer's discussion of Cassirer and other sources that the stuff of the unconscious and affective is imposed upon sacred discourse, Bateson suggests that this imposition has, at least in the past, conferred adaptive advantages with respect to social and ecological factors by permitting men to use their total organisms, and not simply their consciousness, as analogues in their attempts to understand nature. The narrowly defined and often destructive purposes which are to be found in consciousness are thereby, if not overcome, at least "put in their places" by being included in a larger structure which includes materials drawn from non-rational as well as conscious processes. While the unconscious does not contain information concerning ecological systems, the structure of the total mind, of which the unconscious and affective are parts, resembles that of ecological systems, whereas the structure of consciousness alone does not. Thus analogues of ecological systems constructed from the materials of the non-rational as well as the rational have a "structural wisdom" that analogues built from consciousness alone would not be likely to possess.

Against this it might be argued that as the reason has purposes so does the heart, that these, as Freud and others have claimed, may also be destructive, and that their representation in the discourse through which men seek to understand the social and ecological systems in which they participate must be disruptive. But we have been learning in recent years that the non-rational may not be as demonic as Freud, who dealt mainly with pathological cases in a perhaps pathological civilization, believed them to be. However, even to grant the existence of demons in the unconscious is not to argue that they have not served as adequate metaphors for the destructive forces of nature.

I am inclined, then, to agree with Bateson concerning the compatibility of the forces constraining the structure and substance of sacred discourse, and I think that ethnographic materials justify such agreement. We can be confident, I think, that myths and other forms of sacred discourse do include figures and relationships drawn from the unconscious, and we can also note, among many primitive peoples, that the selfsame discourse is important in the effective regulation of social, ecological or demographic variables. It is thus possible to argue that among some primitive peoples, at least, non-rational processes do not disrupt but strengthen the operation of the encompassing cybernetic loop that I earlier sketched.

X.

The sacred, we have argued, has played an important role in the adaptation of technologically simple communities to their social, biotic and physical environments. But the role of the sacred changes with changing political circumstances, and these changes, in turn, seem to be in considerable degree a function of technological development.

We have noted already that the sacred is highly adaptable and a great variety of sentences concerning a wide variety of regulatory mechanisms may be sanctified. Among the Maring, for instance, most sentences are instructions for corrective programs, sentences such as "the ancestors demand the slaughter of all adult and adolescent pigs during the festival." In other societies sanctification seems to invest sentences concerning authorities or regulatory agencies, rather than specific programs, sentences such as "the chief has great mana."

It may be noted that although we, and perhaps the faithful, cast such sentences in the declarative, they imply that the directives of the regulatory agencies, or authorities, to which they allude should or must be obeyed. If political power is taken to be the product (in an arithmetic sense, much as force is the product of mass times velocity) of [men] X [resources] X [organization] (Bierstadt: 1950), we might argue that as far as securing compliance with directives is concerned, sanctity operates as a functional alternative to political power among some of the world's peoples. Indeed, if authorities are taken to be loci in communications networks from which directives emanate we may be able to discern in history and ethnography a continuum from societies, such as the Maring, that are regulated by sacred conventions in the absence or near absence of human authorities through societies in which highly sanctified authorities, such as Polynesian chiefs, have little actual power, to societies in which authorities have great power but less sanctity. It would be plausible to expect this continuum to correlate roughly with technological development, for advanced technology places in the hands of authorities coercive instruments that are not only effective, but also likely to be unavailable to those subject to them.

Our argument implies that the development of technology disrupts the cybernetics of adaptation. In the technologically undeveloped society, authority is maintained by sanctification, but sanctity itself is maintained by religious experience which, I have argued, is responsive to the effectiveness of the control hierarchy in maintaining the variables defining adaptation in viable ranges. In the technologically developed society the authority is freed, to the extent that technology has provided it with coercive instruments, from the constraints imposed by the need to maintain its sanctity and therefore from the corrective operations that the maintenance of sanctity implies.

This is not to say that authorities even in technologically advanced societies dispense entirely with sanctity. It is to say that the relationship between sanctity and authority changes. Previously a characteristic of the discourse associated with the regulation of the entire system, sanctity comes more and more to be concentrated in the discourse of a subsystem, "the church." When it is so confined sacred discourse is likely to continue to ratify authority, but it tends also to become decreasingly concerned with the environment of the here and now and increasingly concerned with ethics and with the environment of the hereafter, the promise of which stirs the meek, the good and the orderly to religious experience. But religious experience, and the rituals in which it occurs, previously part of an encompassing corrective loop, are eventually left with little more than those functions long recognized by students of society: they reduce anxieties produced by stressors over which the faithful have little or no control, and they contribute to the discipline of social organization (see, for example, Homans 1941: 172). To the extent that the discourse of religion, religious ritual and religious experience contribute to the maintenance of orderliness and the reduction of anxiety without contributing to the correction of the factors producing the anxiety and disorder they are not adaptive but pathological. Indeed, their operation seems to resemble that of neuroses (see for example, Freud 1907).[3]

Whereas in the technologically undeveloped system authority was contingent upon sanctification, in technologically more developed societies sanctity becomes an instrument of authority. Compliance and docility are cultivated more efficiently and inexpensively by religious experiences inspired by hopes of post mortem salvation than by the coercion of police and inquisitions. But although force may remain hidden, and although religious experience may be encouraged, it is nevertheless the case that in some systems the unquestionable status of the discourse for which sanctity is claimed rests ultimately upon force. In such societies authority is no longer contingent upon sanctity; the sacred, or that for which sanctity is claimed, has become contingent upon authority.

In the last paragraph I used the phrase "discourse for which sanctity is claimed" rather than "sacred discourse." I earlier argued that a) sacred discourse rests ultimately upon propositions whose unquestionable status is contingent upon affirmation in religious experiences which b) link these propositions, and the rest of the control hierarchy, adaptively to living processes in both the faithful themselves and the ecological systems in which they participate. It may be misleading, then, to use the term "sacred" to refer to discourse a) the unquestionable status of which rests ultimately upon force, and b) which is pathologically linked to the living processes of the faithful and not linked at all to the ecological systems in which the faithful participate.

It is interesting to recall here a distinction de Rougemont (1944) made some years ago between ordinary lies, the transmission of messages known by the sender to be untrue, and those lies which tamper with the very cannons of truth. To these, in consideration of the devil's putative proclivity for appearing to be what he is not, de Rougemont applied the picturesque label "diabolical lies." It may not be inappropriate to place in this category assertions of sanctity for discourse the unquestionable status of which rests ultimately upon force while appearing to rest upon non-discursive affirmation, and which forms part of a pathology while appearing to confer advantages upon those who give it credence.

XI.

It is not only the ultimate corrective loop that is disrupted by the degradation of sanctity. We earlier suggested that within the control hierarchy itself sanctity operated to prevent the promotion of the purposes of subsystems to positions of predominance in more inclusive systems. This function is also endangered, distorted or destroyed by the emergence of authorities with a technologically based capacity to secure compliance through force. Whereas the charge of sacrilege as well as rebellion can be levelled against recalcitrant segments or subsystems of the system, it is also the case that any segment or subsystem possessing sufficient manpower, resources and organization to capture the mechanisms regulating the more inclusive systems is in a position to claim that its own purposes are sacred. In short, when sanctity becomes contingent upon authorities whose ability to secure compliance rests upon force it becomes irrelevant to the maintenance of the hierarchical ordering of purposes.

It is not only by making possible the capture and degradation of the sacred that technology disrupts the self-corrective tendencies of natural ecological systems. Technological development, obviously, is also correlated with increased coherence, increased ability to alter environments and increased ability to meddle comprehensively in the regulation of systems which are incompletely understood. Somewhat less obviously technology develops purposes of its own.

Galbraith (1967) and others before him, have argued that the products of modern industry are so complex and so much lead time and investment is required to produce them, that industry could not function if it were subject to traditional regulatory mechanisms, such as the market. Industrial firms have, therefore, grown to a size which permits them to become independent of the money market for funding their investments, to set demands for their own products through mass communications media, and to control prices charged them by their own suppliers.

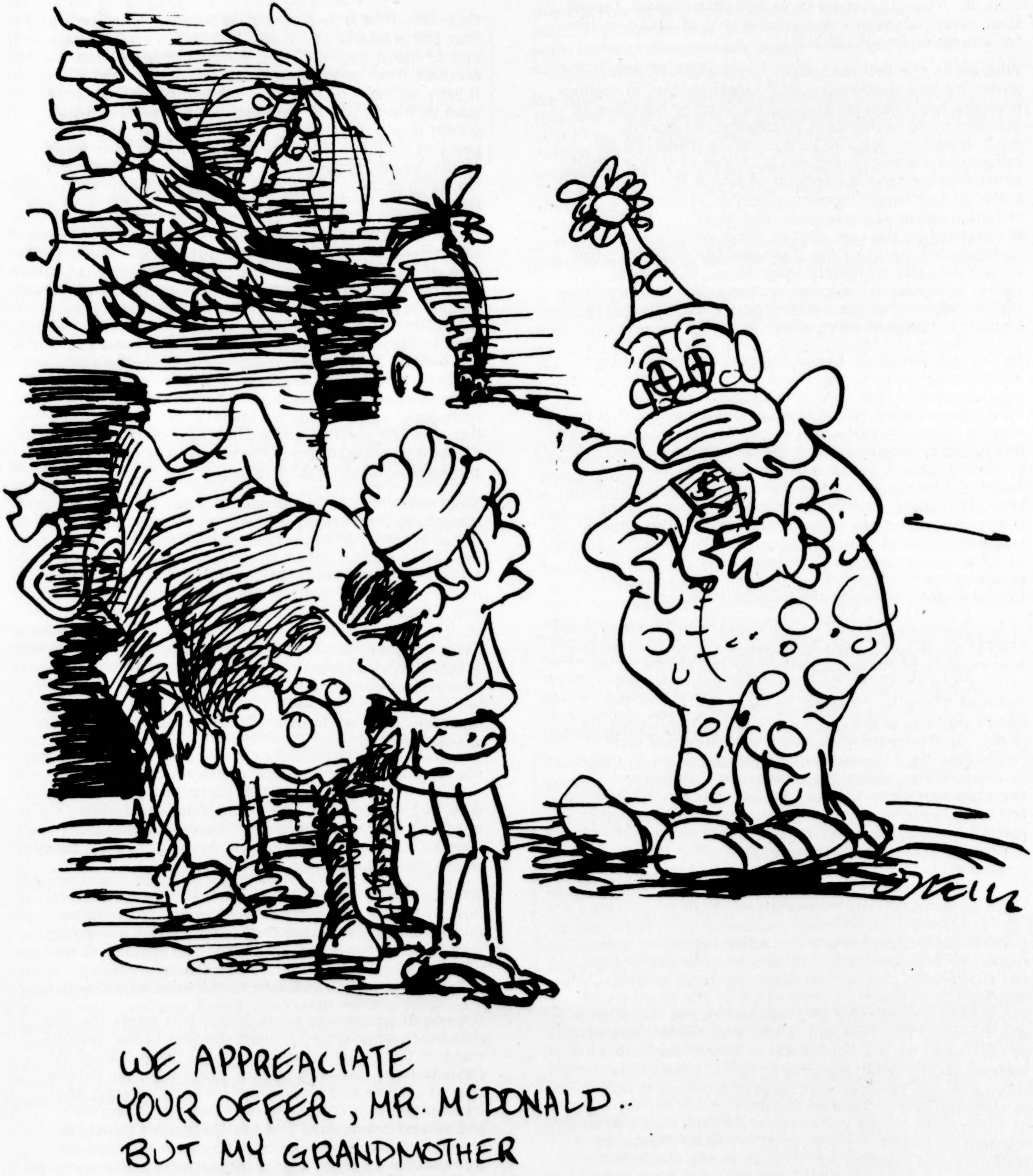
It is important to note that despite differences in ownership arrangements there is little difference in the organization of industrial firms in the U.S.S.R. and the U.S., according to Galbraith. In both the complexity of the technology is such that effective managment must inhere in hierarchies of experts. The mature corporation even in capitalist societies, is no longer operated for the benefit of the owners, who have become anonymous, but for the purposes of the firm itself. These organizational purposes, with which the members of the managerial technostructure identify, are neither more nor less than the survival and enlargement of the firm; the fulfillment of these purposes merely requires that its output be maintained and increased.

Since these firms are enormous and their products are specialized their effective operation becomes central to the economy of the industrial state. They therefore develop special claims on the apparatus of government. Indeed, the organizational boundaries between governments and industrial firms become increasingly vague, and the purposes of industry more and more usurp positions of preeminence within the society as a whole. "What is good for General Motors is good for the United States." In what amounts to a further degradation of sanctity, unquestionable status is claimed for such propositions, which also often include such non-material terms as "freedom," "individualism," "private enterprise" and so on.

Man's ecological dominance is thus replaced by the dominance of industry, and as climax ecosystems once gave way to anthropocentric ecosystems, so anthropocentric ecosystems give way over wide and wider areas to concentrations of machinery and concrete form which most living things are excluded.

It would be absurd to rail against the existence of industry. It will not, and perhaps cannot, be abolished save by a cataclysm that might also abolish everything that lives, and it ought not to be. The problem is one of preserving life even in the presence of industry, or better, to return industry to the service of the living.

Science of course has a role. While it is surely the case that much of science has been devoted to the development of technology and has thereby made substantial contributions to environmental disruption, the partnership of science and technology is recent, uneasy, and incomplete. It is of course true that the "scientific and educational estate," to use Galbraith's term, has grown enormously in response to industry's need for trained men to serve it. But some men are also educated and, becoming aware of the circular structure of the universe through such disciplines as ecology, physiology, cybernetics and even anthropology, become critical of the industry for which they or others have been trained. Knowledge, encouraged by industry for its own purposes, sometimes achieves an ancient wisdom which leads it to devise means for controlling that which nurtured it. Such disciplines as ecology and cybernetics are themselves part of a cybernetic mechanism.



WE APPREACIATE
YOUR OFFER, MR. McDONALD..
BUT MY GRANDMOTHER
IS NOT FOR SALE..

Not unrelated, there is still sanctity. Although sanctity may become degraded in the churches, throughout history revitalistic movements have again and again emerged in the streets and in the fields among men sensing, and perhaps suffering from, the malfunction of control hierarchies that cannot reform themselves. Depending upon the propositions to which they accord sanctity, these movements have sometimes been corrective, sometimes more disruptive than that to which they are a response. Some of those that have apparently achieved success have, in the course of becoming institutionalized, themselves reduced the sacred to the status of authority's instrument. It is, perhaps, seldom clear in the early stages of such movements whether they will be pathological or adaptive, or whether, adaptive at first, they will later become pathological.

There is again in the streets and on the campuses a movement among youth who, rejecting subjugation to the purposes of machines, are in search of new sets of sacred propositions. The outlook for this movement, which is perhaps singularly amorphous, is not yet clear. Certainly in some of its aspects it seems destructive. But there are also indications that at least some of those participating are ready to accord sanctity to those propositions of ecology, physiology, anthropology and cybernetics that once again asset the circular structure of a world composed of a multiplicy of living things. Indeed, one of its prophets not only calms his followers with mantras during confrontations with the police, on quieter occasions he quotes Bateson and Commoner (Ginsberg 1969).

Whether such movements are sufficient to the tasks confronting them it is too soon to tell, but their strength is not to be underestimated. The anti-war movement, for instance, was able to drive a president from office. But I do not cite the youth and anti-war movements to suggest that with them, necessarily lies salvation. I mention their emergence, and the emergence of the biological, social and cybernetic disciplines only to underline the obvious: that corrective, or potentially corrective forces emerge through unplanned evolutionary processes, and to suggest that theories of action should be predicated upon the existence and continual generation of such forces. Indeed, if such a theory is to avoid the dangers attendant upon meddling in the regulation of highly complex and poorly understood systems, it should focus upon spontaneously emerging corrective forces and upon their nurturance. No clear line can or need be drawn between planned intervention on the one hand and the nurturance of such spontaneous forces on the other, but emphasis in a theory of action should be on the latter. Such a theory of action should aim toward defining those actions which encourage the development of regulatory mechanisms as a class, rather than attempting to specify the corrective actions to be undertaken in various circumstances. Such work is better left to ecology, urban planning or the social sciences. To be somewhat more specific, the theory should provide a framework for 1) identifying spontaneously emerging forces as potentially corrective or disruptive with respect to specific conditions and, hopefully, systems as wholes 2) understanding the processes by which such forces are generated, maintained, and directed, 3) specifying the conditions which encourage their development 4) understanding the processes or conditions which tend to channel emerging but inchoate forces into corrective or disruptive courses of action 5) understanding the processes by which such forces are or may be transformed into more or less durable regulatory mechanisms i.e., "institutionalized" 6) discovering or inventing the procedures by which regulatory mechanisms may be prevented from becoming rigid and unresponsive.

Both science and sanctity will surely have places in the substance of such a theory, and perhaps in its epistemology as well. In the arena of action itself I believe that it is the task of those disciplines which are concerned with the necessary interdependence of living things to provide viable propositions to which men can accord sacred status.

Box 428, Sausalito, California 94965

NOTES

1. This paper was prepared while the author was a fellow at the John Simon Guggenheim Foundation and a Senior Specialist at the Institute of Advanced Projects, East-West Center. The author is grateful to both sponsoring institutions.

2. I have already noted that no natural social-ecological system is likely to be as neat as the illustrative scheme offered here. It is not always the case, for one thing, that all of the variables of a particular class (garden variables, consumption variables) will be regulated by the same mechanism. Conversely some mechanisms may regulate variables of a rather disparate sort. Institutional analyses (in Malinowski's sense) or even the use of labels associated with institutional analyses (subsistence system, commissariat, educational system, etc.) tend to make the world appear to be more rationally structured than it in fact is. We may be further misled into believing that we already know what we need to discover, namely what the systems and subsystems in the phenomena under investigation are composed of an how their components are related to each other. Natural systems and their subsystems are not to be identified through a priori classifications of variables or by particular kinds of output (foodstuffs, warfare), but by partial discontinuities in coherence between clusters of highly coherent variables and by the domains which particular mechanisms regulate. I have presented an overrational hierarchy merely for the sake of simplicity. Simplicity also requires that we merely note, but do not discuss, the likelihood that in any body of social-ecological phenomena there will coexist a number of control hierarchies relating to each other in extremely complex ways. It is surely permissible to attempt the analysis of one or a limited number of these hirarchies. Indeed, much more ambitious undertakings may not be feasible.

3. This is not to say that religion is a neurosis, nor that to practice religion is a symptom of neurosis. Moreover, like neurotic symptoms it may be preferable to available alternatives.

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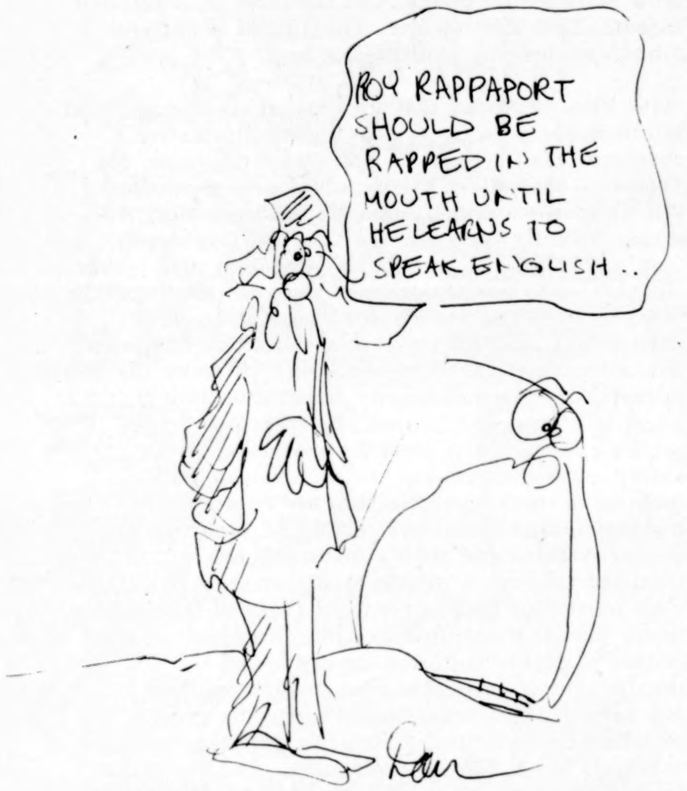
ROY RAPPAPORT SHOULD BE RAPPED IN THE MOUTH UNTIL HE LEARNS TO SPEAK ENGLISH..

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Sanctity and Adaptation was prepared for the Wenner-Gren Foundation Conference "The Moral and Esthetic Structure of Human Adaptation," July 1969. The author is grateful to the foundation and to its director, Mrs. Lita Osmundsen, and to Gregory Bateson, the conference convenor, for the opportunity to write it.

A Third Chameleon - Hypothesis

"What color is a chameleon on a mirror?"

I asked the question of Gregory Bateson at a point in our interview when we were lost in contemplation of the function, if any, of consciousness—— self-consciousness. Both of us being biologists, we swerved to follow the elusive chameleon. Gregory asserted that the creature would settle at a middle value in its color range. I insisted that the poor beast trying to disappear in a universe of itself would endlessly cycle through a number of its disguises.

Now hear the hypothesis of Gerald Hall, student of Gregory's at Santa Cruz, author of the following book review, and proponent of G. Spencer Brown's Laws of Form *(which denotes but two basic systems—— ones which remember and ones which oscillate):*

"The chameleon will stay whatever color he was at the moment he entered the mirror domain."

–SB

System and Structure

This book is expensive, long, and difficult. It is also full, significant, and rewarding for those seeking a deep theoretical understanding in the fields of semiotics and communications. A revolution has been going on that doesn't get into the newspapers or magazines. Developments in cybernetics, information and communications theory, general systems theory, and mathematical logic have come together to require a restructuring at the foundations of our knowledge.

In **System and Structure** *Tony Wilden shows how things look from a new vantage point. It takes developments in modern science as conceptual tools and goes to work on psychology, anthropology, linguistics, political economy, ecology, the genetics of intelligence, structuralism, and literary works by Montaigne and Svevo. Some of the tools are the ideas of Logical Types, analog and digital coding, feedback circuits and morphogenic systems, as well as the related concepts of paradox, oscillation, runaway, double bind, redundancy, emergence, and others. The list is long, but each idea is important for understanding ourselves, our society, and our place in the ecosystem.*

Two of the great men in the history of ideas receive particular attention: Freud and Marx. Their genius is revealed in how much of their work anticipates and is validated by these new ideas. It also becomes possible to separate their important insights from the errors derived from the prejudices of their times and their lack of essential concepts. Other authors whose ideas are examined include Bateson, Laing, Lacan, Piaget, Levi-Strauss, and Marcuse.

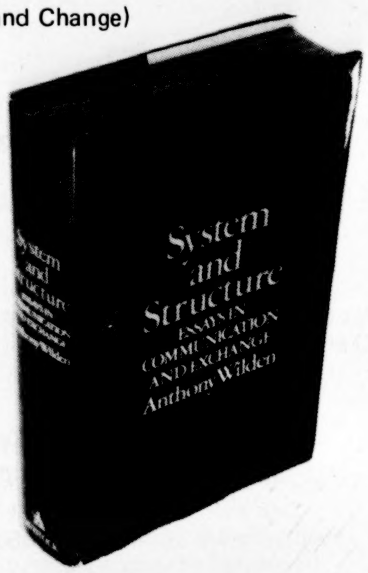
This is also a deeply political book, committed to the liberation of men and women from an irrational and destructive system. It is an expression of a new guerrilla rhetoric which requires that you know everything your oppressor knows and that you be prepared to confront him on any ground. The non-neutrality of the text when dealing with theories and ideas which function only as repressive metaphors of the status quo, may offend some readers, while stimulating and challenging others.

System and Structure *is one book that should not be read straight through. Probably the best approach to the material (after reading the introduction) would be to choose the chapter that interests you most, perhaps "Beyond the Entropy Principle in Freud," or "Nature and Culture: The Emergency of Symbolic and Imaginary Exchange," or "Analog and Digital Communication: On Negation, Signification, and Meaning." When a new and unfamiliar concept is encountered, the index should be consulted for other places where that idea is used and developed. This branching out will make the best possible use of the redundancy involved in using the same set of ideas in many different contexts. It will also allow your own needs and interests to chart the most rewarding course through the material.*

System and Structure *is a valuable book, containing a significant array of important ideas which no one with pretensions to intellect can afford to be without. Read it.*

—Gerald Hall

System and Structure
(Essays in Communication and Change)
Anthony Wilden
1972; 540pp.
$23.75 postpaid
from:
Barnes & Noble Books
Keystone Industrial Park
Scranton PA 18512
or Whole Earth



If dissent is to escape its own self-alienation, if it is to escape the automatic response of liberalism, that 'all ideas are equal' or that a new theory is simply 'an interesting new point of view', then dissent must transcend the status of negative identification. In a word, ALL DISSENT MUST BE OF A HIGHER LOGICAL TYPE THAN THAT TO WHICH IT IS OPPOSED. It will thus not make the Hegelian error of trying to reduce real and material differences to identity, for this is to be caught in an endless *jeu de miroirs* from which there is simply no escape.

●

2 Zero is not an absence, not nothing, not the sign of a thing, not a simple exclusion. If the natural numbers are signs, it is a signifier. It is not an integer, but a meta-integer, a rule about integers and their relationships.
3 The empty set is similarly a rule about sets.
4 The digital has to do with boundaries. In number theory, set theory, and language, 'zero', '∅' and 'not' are the rules for punctuating boundaries. 'Not' is of a higher logical type than zero or ∅, if only because it is the logical prerequisite for zero or ∅.
5 Analog refusal, rejection, and disavowal are to be distinguished from syntactic negation.

Some Cybernetic Words

Reply to a word usage questionnaire from Heinz von Foerster's cybernetics research group:

Cybernetics of Cybernetics
216 EERL
Univ of Illinois
Urbana IL 61801

TOOL– – a tool consists of a use at one end and a grasp at the other. Tools, tasks, and user co-adapt and co-evolve in rich interaction.

GOAL– – 1) An image deliberately held in front of an incompleted action to goad and direct its accomplishment. EG. Orgasm.

2) The convergent direction of any self-correcting process. EG. Survival. Deliberation is not required.

FEEDBACK–– an unpoetic inexpressive word that shrieks for replacement. Correct use of the term would refer to eating your own vomit. 'Positive feedback' and 'negative feedback' would signify whether you like the vomit or not.

I'd prefer a term like 'circuit' to indicate any system or subsystem that responds to its own action–– and something like 'covergent' or 'divergent' to indicate the nature of the response ('divergent' would cover the two unstable forms–– anti-corrective 'positive feedback' and over-corrective hunting oscillation.)

Another bad word is HOMEOSTATIC. What is meant is HOMEODYNAMIC.

VALUE–– any station in a spectrum (i.e., graded set) of preferences used in arbitrating a tradeoff.

–SB

Natural History Comes to Whole Earth

BY PETER WARSHALL

This is an invitation to participate in a new service of The CQ *and* Epilog.

–SB

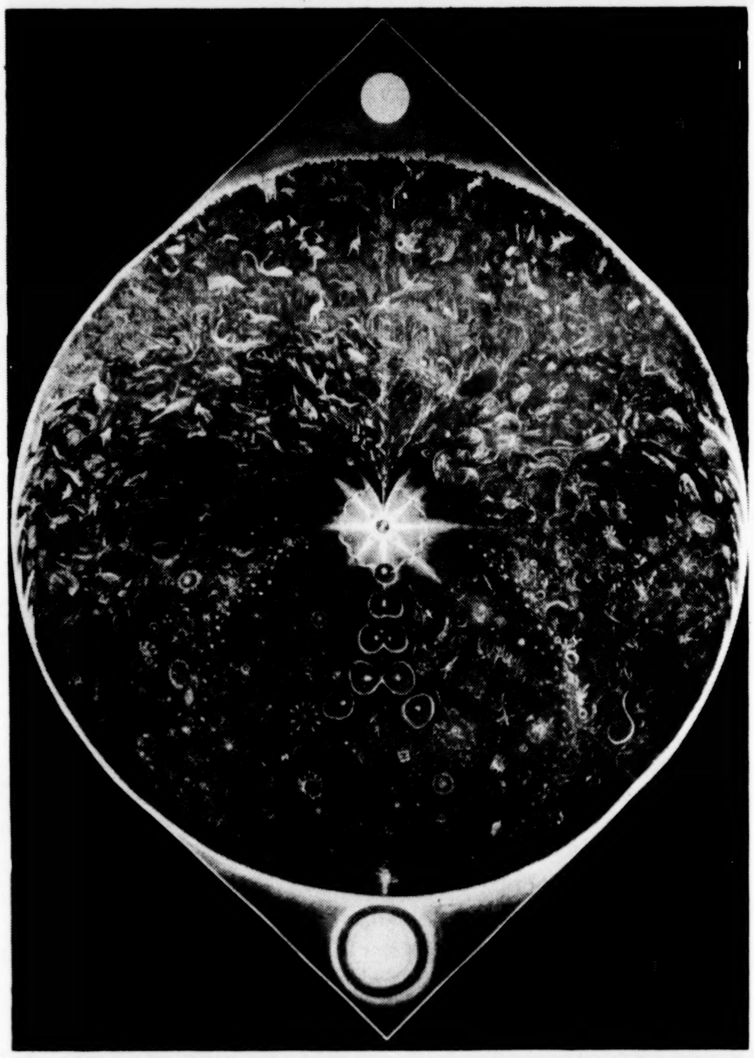
> *Every theory of nature is necessarily based on some process of simplification and, is to some extent, therefore, a fairy tale.*
>
> —Sir Napier Shaw

The "whole" Earth is still remote from human imagination. Try sketching the planet's major land masses or naming the Earth's largest watersheds. Almost no American could trace the step-by-step process of geography, soils, weather, plant-life and industrial and human energy that goes into a Mars bar. Previous **"Whole" Earth Catalogs** were concerned with North America and, only briefly, touched other parts of the planet. Wouldn't it be astounding, I once mentioned to Stewart Brand, to have a truly whole Earth catalog of the most exciting and useful guides to the creatures and topography of the biosphere. My fantasy spun out a catalog that celebrated the planet's great parts: land, ocean-atmosphere, and protoplasm. This fantasy guide became a planetary vehicle to reconnect to the biosphere's cycles by identifying the links. Below is a semi-trip out into the possibilities of such a catalog. Any suggestions from you would be welcome.

I. FIELD GUIDES TO THE WHOLE EARTH

Guides are simply the tool, vehicle, vision or creature to reconnect biosphere and mind. I daydream of the day when book guides die out and a strong spoken tradition revives. People remember and learn from animal and plant guides, from mushrooms, crystal, mountain, divine as well as human guides. In 1974, most Americans are stuck with printed guides, a few TV programs, an occasional park ranger and psychedelics. To many Americans, it is near impossible to find pleasure in the dull, often skimpy prose, of field guides. Equally often, the human is so anthropocentric that he/she can't quite believe that different wingbars on a sparrow's shoulder, different textures of a mushroom cap, different hardness (scratchability) of minerals or different arrangements of a plant's genitals are really important. In other words, printed field guides reveal themselves as useful the more you believe in diversity, the more you can see it as a real expression of real importance to the creatures concerned. This is a biocentric vision.

Right now, the **Epilog** will review mostly guides in English—— especially for North America and Mexico. Each guide will be pondered by a human who has tried to work their way through the pages on location. Eventually, we may have guides to all creatures everywhere. So, if you've birded in Africa or watched lemurs in Madagascar and know a good guide, I'd like to hear about it. Guides include flash cards, records, low-cost field trips or slides.



Evolution Mandala

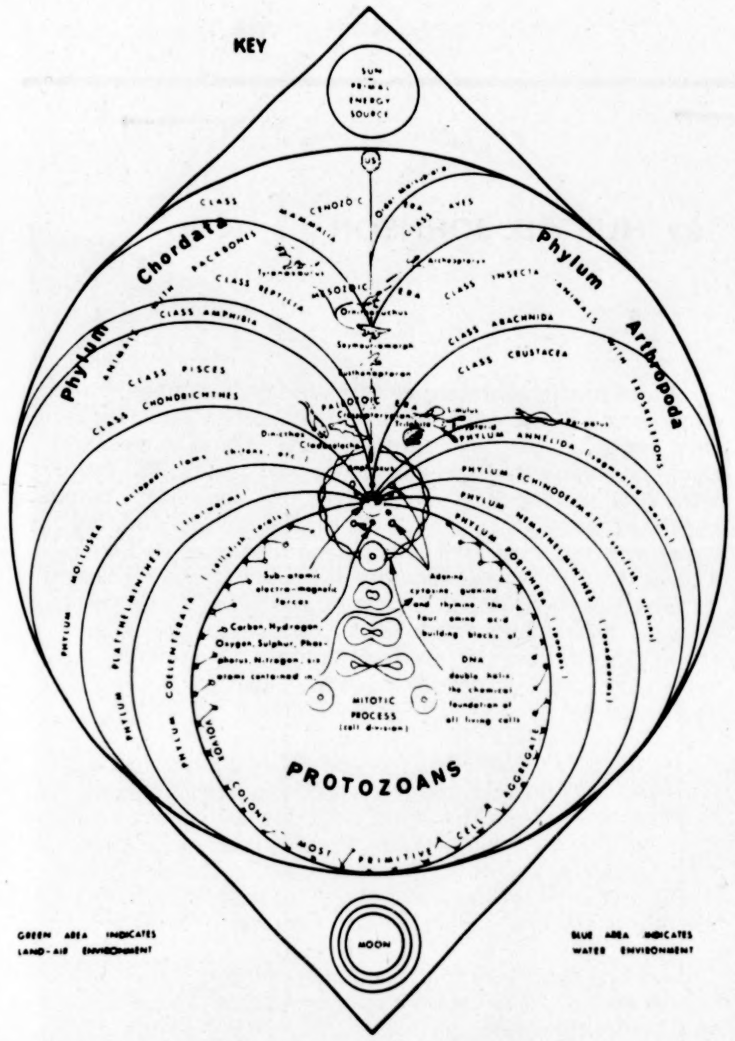
The Evolution Mandala, a full-color 35" x 49" poster of Dion Wright's 10-foot painting, costs $5 postpaid from:

Thofra
Box 308
Sausalito CA
94965

II. NATURAL COMMUNITIES

When the Huni Kui, an Amazonian River Basin people, hunt wild pigs, the hunter makes sure the lead sow is never killed. She is responsible for the herd's cohesion, its feeding routes and defense of the pig herd's home. Her death means the pig community will temporarily go beserk. Without a leader, pigs wander randomly in the jungle. They are hard to find and may leave the Huni Kui tribal area. Death of the lead sow means no pork. If the lead sow dies by accident, Huni Kui place a moratorium on pig killing and spread the blood of the lead sow throughout their tribal hunting lands. Only when the pig community is back together again will the Huni Kui resume the hunt.

This kind of mutual respect for the community life of another animal, especially an animal you eat, has been lossed. I dream of a great dragon who sits in a cave and tells me stories of the Earth's communities and how humans might re-weave their consciousness into a community fabric. The dragon explains how the plants of Santa Cruz and Athens have similar dry summer problems, how the raccoon and the monkey can be thought of as Old and New World counterparts, or how certain


KEY
SUN
PRIMAL
ENERGY
SOURCE
US
CLASS MAMMALIA
CENOZOIC
Order Marsupials
CLASS AVES
Phylum Chordata
ANIMALS WITH BACKBONES
Tyrannosaurus
CLASS REPTILIA
MESOZOIC ERA
Archaeopteryx
Ornithosuchus
CLASS AMPHIBIA
Seymouriamorph
Eusthenopteron
CLASS PISCES
CLASS CHONDRICHTHES
PALEOZOIC ERA
Crossopterygian
Limulus
Trilobite
Dinichthys
Cladoselache
Amphioxus
Phylum Arthropoda
CLASS INSECTA
CLASS ARACHNIDA
CLASS CRUSTACEA
ANIMALS WITH EXOSKELETONS
PHYLUM ANNELIDA (segmented worms)
PHYLUM ECHINODERMATA (starfish, urchins)
PHYLUM NEMATHELMINTHES (roundworms)
PHYLUM PORIFERA (sponges)
PHYLUM MOLLUSKA (octopods, clams, chitons, etc.)
PHYLUM PLATYHELMINTHES (flatworms)
PHYLUM COELENTERATA (jellyfish, corals)
PHYLUM VOLVOX
Sub-atomic electro-magnetic forces
Carbon, Hydrogen, Oxygen, Sulphur, Phosphorus, Nitrogen, six atoms contained in
Adenine, cytosine, guanine and thymine, the four amino acid building blocks of
DNA double helix, the chemical foundation of all living cells
MITOTIC PROCESS (cell division)
PROTOZOANS
COLONY MOST PRIMITIVE CELL AGGREGATE
MOON
GREEN AREA INDICATES LAND-AIR ENVIRONMENT
BLUE AREA INDICATES WATER ENVIRONMENT

POETIC LICENSE PLACES HUMAN BEINGS AT THE APEX OF THIS PICTURE. MAN HAS HARNESSED THE POWER OF THE ATOM AND PUT FOOT UPON THE MOON. IT REMAINS TO BE SEEN IF HE CAN ALSO ACCEPT HIS RESPONSIBILITY OF PLANET STEWARDSHIP AND SUSTAIN THE NATURAL WORLD

eucalyptus from Australia moved in on the giant redwoods because of a similar "taste" in climate. In 1974, the dragon sleeps and again we must rely on predictably boring, academic books to create a whole Earth consciousness. To start on a quest for the BIG PICTURE of the Earth's communities, the **Epilog** will review: (1) more conceptual and theoretical books like Odum's new edition of **Elements of Ecology** and (2) books bringing together parallel regions, biomes, habitats and microcosms of the Earth.

III. TRANSFORMATIONS OF EARTH

The rhythms of natural communities are seasonal and cyclic. But, simultaneously with these seasonal rhythms, are time changes which are not cyclic. These time changes are linear and can take place over hundreds and hundreds of thousands of years. During these transformations, communities completely disappear and new communities unfold. This linear time is "evolution" or Earth History. The forces, flashing communities in and out of existence, are huge. They include continental drift, man, the oxygen revolution of two billion B.C., and co-evolution. This section is dedicated to the Big Transformers of Earth and its creatures.

IV. SENSIBILITY OF THE ORGANIC WORLD

As the twentieth century discovers more and more kinds of vibration, the Earth's presence can be felt more and more as a giant field of forces passing among the creatures. Humans are not numero uno when it comes to feeling all the vibes that exist on Earth and each expensive experiment reconfirms that sensibility is species specific. Dolphins, for instance, see with sound. They hear echoes that become images of fish and frogmen. Copperheads hunt by heat. Feeling your presence in the grass as a hot, vibrational source. Pigeons probably navigate by the Earth's electro-magnetic fields and bees head down clearly marked, ultraviolet runways on flowers. This section I hope to be a total turn-on to animal aesthetics, perception, and social graces. More and more a clear statement of the vibrational unity of what's happening needs to be heard. Two foci: general books on the sensitivity of the organic world, and books or movies on specific creatures and their life-styles.

V. EARTH PRACTICE (by Humans): 1974

Follow any path to discover the process: paper back to tree flesh; an expression like "a barrel full of monkeys" back to the monkeys; or a can of fruit salad back to the tin mines, the wild pineapple and the undomesticated peach. Many friends following the paths of a "product" suddenly find themselves defending the plant or animal or even the process itself. This is totemism. In my life, totemism has meant defending endangered species like the blue-footed booby or the hump-backed whale. A friend, Lloyd Kahn, starting as a carpenter and house builder, switching to writing on paper, found himself a Defender of Trees. Another friend, Keith Lampe, even adopted a Totem name (Ponderosa Pine) to keep reminding those he met that trees were more than an exploitable resource. We need lots of books, movies and energy that will focus more humans to defend, among other creatures, the trees this paper is printed on.

Next, human practice on Earth must work toward the rejuvenation of cities. As a child in Manhatten I dreamed of thousands of cattle driven from New Jersey to Wall Street. The windows of all the buildings were opened and Peruvian music played throughout the city. Everyone decided to tear up the asphalt, mix with cows, and give them a place to roam. New York could have many roof-top gardens. The city's shit could produce fertilizer as well as some methane needed to run city farms, transportation and electricity. Any books or organizations that can start bringing the green belt into the ghetto would save us energy, "vacation" money and pollutants.

•

Land Banking

BY HUEY D. JOHNSON

At the recent U.N. Conference on Human Settlements, press coverage focussed on this talk by Huey Johnson. As a solution to growth and preservation and land control problems, it can be applied in any size community.

Huey Johnson, 41, was western regional director of the Nature Conservancy until recently, when he founded the Trust for Public Land (partially with funds from the Whole Earth Catalog). Both outfits work in the private sector for public good—— out-aggress the commercial developers and turn over the land they obtain to cities, colleges, states, etc., for parks, research preserves, social experiments, etc.

Not long ago I heard myself soothing a lady ruffled by Huey's sometimes abrupt manner, "Huey Johnson is a thug-for-Good."

—SB

INTRODUCTION

Land Banking is an idea whose time has come. The concept has long existed in several forms in the United States and has been implemented on a refined and effective basis in other countries.[1]

The public has suddenly realized that resources of our nation and world are limited, including fuels, minerals, air, water and especially land, and is accepting the reality that we will have to manage them in better fashion. I see land banking as part of our maturing process.

Until now, I do not believe the time has been ripe for a broad approach to land banking in America. Problems have at last become intense enough to provide a need for a positive approach, one that will involve our effective private business sector, investment capital and the public interest in a more healthy limited growth direction. I believe land banking does this, and the time for it is now.

I. DEFINITION

Land banking refers to the process of the community entering the real estate market, buying land by direct purchase or often with borrowed money, and then leasing, or on occasion selling, sites for development. Thus the community influences land use decisions, not only as the government but also by participating in the ownership and orderly development of the basis of its wealth, its lands.

Three Major Advantages Include:

A. GROWTH CONTROL: Growth control is urgently needed to stop costly urban sprawl, curtail leapfrogging that devours agricultural lands, and to better apportion resources to cure urban social ills. The principal advantage and device for control is that community ownership of land which is to be developed allows the community to make the development decision.[2] For if land is publicly owned, timing of development, design, size and location are no longer the problem they are under our zoning concepts.

B. CURBING LAND INFLATION: The real payoff with land banking comes not from acquisition but rather the reservation of ultimate disposition for use.[3] By selectively buying developable lands ahead of needs, and then releasing portions for development according to its own plan, much commodity-style speculative opportunity is removed.

C. RESERVING TO THE PUBLIC A FAIRER SHARE IN INCREASED LAND VALUES: The traditional U.S. concept is to allow a speculator (often a non-resident) to "cream" the profits from land and then leave the city with the tax load of social services. Even with revenue-producing potential removed, cities must cover long-term service costs on a losing basis. That, in my opinion, is a reason for our current urban dilemma.

Those profits represent vitality, and once drained, cities experience a disastrous trend as we now see in New York City. Here, an aging land requires more income to maintain than is available. The speculation by past generations has left a tired resource and the dilemma of a declining rate base. On the other hand, Canberra, the capital of Australia, is a new town that leases, not sells, its building sites, and it has a bright future as regards income to maintain city services.[4]

One author compares Canberra and New York, musing on what would have happened if the original Dutch and ensuing city fathers had retained Manhattan in public ownership, keeping the full economic base for the City Treasury:

> *Land values in Manhattan might be a good deal less than they are, development would probably be less centralised. The City would probably not have to worry about levying taxes on property, in fact it might even be declaring an annual dividend. Certainly it would have the resources to do all manner of things it would actually want to do, and simply cannot, for want of money.*[5]

To hope to survive and retain high quality, cities need to reserve part of the value they have created by urbanization, or to quote directly:

> *It now seems generally understood that increases in urban land values result primarily from publicly financed improvements, growth of population and the entire process of urbanization. That a single private landowner should harvest the crop that everyone in the community had a hand in planting and cultivating seems indefensible logically and ethically.*[6]

To share in these increased values is a principal reason for leasing public land rather than selling it.[7] There are examples of land banking in the U.S. and elsewhere which have employed this principle. A successful, well documented U.S. example of the leasing advantages is the University of Washington's ten-acre holding in Seattle. Although this is land managed for endowment, as many universities or other nonprofit institutions do, it demonstrates clearly the advantage of recapturing value through leasing.

Discontinued for use as a campus, it was leased in 1904 for development with a fifty-year term. The university's income over those fifty years totalled $4 million. Then in 1954 a renegotiated lease recaptured current value levels. In that 18-year period from 1954 through 1972, increased income totalled $22 million available for the university.[8]

II. ISSUES

Because some will see it as controversial, before further discussion of land banking I want to discuss issues that make it timely to business, environmental and community needs. If broadly understood land banking will, I believe, become an obvious aid to several social problems.

One major theme of **The Limits to Growth** is the compounding problem of delays which occur between the development of a problem, the social perception of it, and its solution.[9] Regarding land banking, I see us at the stage of perception, and believe it is urgent that land banking be understood and implemented.

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Bruce F. Wolfe

A. A RECEPTIVE PUBLIC

I believe that public opinion has evolved to a point where it recognizes the need for a radical new approach to problems of land use. Several reasons are clear. First, the realities of land scarcity emphasized by shortages of food, power, housing, recreation opportunities and other obvious land-related resources have helped bring about a new citizen awareness that land is a limited resource.

Second, the opinion-makers and the voters who listen to them are beginning to question the goal of perpetual GNP growth, and the use of the GNP as the measure of our economic system. They realize that traditional economists have not included external social costs such as pollution, distribution of wealth, health, speed of technological change, and a balance of existential values, in their economic planning models.[10].

Finally, a series of great public responses, based on a "new mood"[11]. makes me believe that the time for land banking has come. One is the increasing willingness of voters around the country to tax themselves in order to pay for open space, especially through bond issues. In November 1972 alone, state and community ballot measures made an additional $800 million available for purchase of recreational lands. Although land banking goes beyond open space considerations this is significant in two ways: there was no overall Federal policy to get these passed; it was, I believe, a true grassroots response; and the issue could have been a vote for funding land banking, not just open space, had the public been offered the opportunity.

1. The New Public Mood — Taking and the Fifth Amendment

Land zoned for limited development, for instance, restricts use for other purposes, and yet no payment is made to the owner whose land is so downzoned. This is an area of constitutional question involving changing public attitudes, and court decisions are increasingly upholding the public regulation without payment. This is a controversial change, and warrants discussion. In his new book **Future Without Shock**, Louis Lundborg, retired Chairman of the Board of the Bank of America, defines in sensitive fashion the changing public attitude affecting land. To quote:

> *It has seemed to be an axiom of American life that a man's property was his to use as he saw fit... but that never has been an unlimited, unqualified right. The limitations applied from time to time have been those that were important to the life of that day. From the beginning, the right of privacy, of freedom from trespass, freedom from unwarranted search and the like has been protected. But the use of property to disturb the peace, to create a public nuisance, to endanger health or safety has long been subject to limitation.*
>
> *Now there is added to that limitation the doctrine that ownership of private property does not bestow unlimited right to alter the character of that property. Heretofore, the limitations have recognized that neighbors and other contemporaries have a right to be protected from improper use of property. The new doctrine adds future generations as having the right to enjoy the property unchanged in character unless the changes have been publicly declared to be in the public interest.*

> *What this doctrine introduces is the element of stewardship. It says, in effect, this property is yours to use, and for your children and their children to use, unless you choose to sell it to someone else, which you have a right to do. But each of you who comes into possession of it has an obligation to pass it on in as good condition as when you received it. No one of you has the unlimited right, during his brief tenure of holding that property, to make irreversible changes in its character without public consent.*[12]

There are of course complex legal and other discussions concerning this issue. My aim for now is the philosophical basis for the change.

2. Critics of Land Banking

The land banking movement can expect to generate its critics. However, those emotional responses of socialism or communism are, I believe, outmoded now. Land banking is neither. There is a long history of public ownership of land, and some good examples to be drawn upon. Some 5,000 acres of the present Washington, D.C. area for instance, were in private ownership and were the object of speculation, but thanks to the foresightedness of two men, Washington and Jefferson, they were brought under public control to build the nation's capital.[13] Acquisition for land banking is not expropriation. It is the public entering and participating in the land market in terms of present needs so that cities, and our way of life, can survive.

B. QUESTIONING LAND AS A COMMODITY

If I read the signs right, our cities and people are beginning to rebel against the old concept that land is like any other commodity that can be dealt with in speculative and profiteering fashion for purely private gain. Taxpayers are beginning to resent the fact that unplanned development results in excessive costs to the community. Thoughtful people resent the fact that private land speculation leads to inflation, not only in land costs, but also in the cost of housing, food, and everything else derived from the land. Urban opinion leaders are even beginning to believe that the community has the right and duty to control its own landscape, so that it serves human needs more efficiently and at lower cost to the taxpayer.

The new Vermont law requiring a public share in land speculation profits through a graduated capital gains tax is one demonstration of this reaction. And as a spectre of what could happen, it is certain to make developers more open to discussing alternatives.

C. PRESSURES ON BUSINESS FOR CHANGE

1. Negative Administrative Pressure

The symptoms of this new concern for land use are everywhere. Zoning is no longer so easily influenced by the builder or the landowner. Not only may he be denied automatic approval of higher zoning for his land, but he may actually find his land being downzoned for open space purposes. Land use planning is in many places being taken seriously for the first time. Regional agencies are being created to implement effective controls over large, sensitive areas all around the country. The San Francisco Bay example may not be entirely typical in this respect, but I believe other urban areas are not far behind.

The reality is that traditional methods of zoning or negative land-use control are not working universally. Land use decisions tend to be capricious and unpredictable, sometimes too tough, and sometimes too lax. Developers are dealing with municipalities and agencies that really aren't sure what land use they do or do not want, but are often willing simply to sit on applications for development until a political decision evolves.

It's my belief that the public cannot shape the city it wants merely by saying "yes" or "no" to private proposals.

(A) FINANCIAL LOSS FACTORS

The situation is even less satisfactory from the point of view of the landowner, the builder, and the investor. Corporations and investors who have regarded land as a safe investment are in a high risk, money-losing bind, not only in urban development, but also (and perhaps best demonstrated) where recreational lands and land on the urban fringe are concerned. Corporations and individuals in the West, for example, are losing millions, and often facing bankruptcy as a result.

(B) LEGAL FACTORS

The current response of some developers is to turn to the courts, relying on the constitution, without great success. In fact, court decisions are more often favoring the public, and where they are not, new laws are being passed which further restrict a "no holds barred" approach to land use.

I believe that even if the answer were temporarily favorable to developers, the changed public mood would still find ways, acceptable to the courts, of preventing development it did not want. The sheer burden and delay of applications, presentations, environmental impact statements and so on are beginning to take their toll.

Thus the negative concept of land-use regulation has left us with a sad result for both the public and private sectors: it does not really achieve the urban environment we want, and it makes life extremely difficult and risky for those who invest in development.

On the public side, regulatory agencies have to be concerned with the "taking issue"[14] and other legal hurdles when they dictate the uses to be made of private land. With notable growing exceptions, they can presently do little more than modify private development proposals with unsatisfactory results for both sides.

2. Positive Pressure Toward A Land Banking Concept

Land banking could be smart business both for industry and the public. Treating land as a commodity may have been all right while it appeared limitless. That helped build our nation. Now, as I have discussed, the public view is changing. What we need to move on is a concept "through which public policy might improve circumstances and free private energies to contribute to and not work against the public interests."[15]

Land banking frees business to proceed. John Reps lists some advantages to builders. Among them are:

> *The small builder, increasingly at a disadvantage in coping with the complexities of site design and land development, would be better able to compete with large-scale tract developers. This is important not only for him but for the consumer as well, in keeping prices down through competitive sales, and in providing more opportunities for custom design and variety of accommodations.*
>
> *– Builders could concentrate on what they know best, construction and sales. They would avoid the worry, uncertainties and costs of engineering and land planning services.*
>
> *– There would be no long delay as at present in securing subdivision approval, and the added expense of modifying site design would be eliminated.*
>
> *– There would be no time and temper lost in negotiating on how much land is to be dedicated for public use, or how much in fees is to be paid in lieu of dedication.*
>
> *– There would be substantial savings in interest costs on money borrowed for land purchase, since the long period during which a site is now unproductive would be reduced to the absolute minimum.*
>
> *– The builder would know exactly the final cost of land and site improvements, thus reducing one of the major elements of uncertainty in the entire process of development...*[16]

(A) EASING THE DEVELOPER vs CONSERVATIONIST CONFLICT

Land banking would not only accomplish the important social goals of defining and controlling urban growth. But it could resolve some of the most deep-seated controversies between environmentalists and those involved in land development.

(B) OPENING OF MARKETS FOR INSTITUTIONAL CAPITAL

Possibly most important is the opening of markets for institutional capital. By having nonprofit community land banks buy land for the future with borrowed private capital and letting the land earnings pay off the debt, both the public and the lenders benefit. The recent $100's of millions of bond issues for public open space provide a sound beginning potential for such lenders.

(C) ZONED LAND AND THE POTENTIAL OF A LAND BANK BUYER

Not the least of land banking's appeals is that it could ease the issue of taking by zoning, by being one possible buyer of lands so restricted.

IN SUMMARY: The fact that the public is willing to support an effective system of urban land-use guidance for reasons of growth control and long-term land stewardship, and the fact that business needs a more reliable investment framework, leads me to the conclusion that when the notion of land banking is "discovered" it will be mightily welcomed.

III. THE STOCKHOLM LAND BANK PLAN

Because Stockholm's program is successful on a large scale, well-documented, and is something I observed first-hand during the 1972 U.N. environmental conference there, I will use it as a detailed example; however, successful land banking such as that in Dutch cities is worth reviewing too. (See Bryant, p. 204, or ASPO report for background.)

In 1904, the City of Stockholm began to buy land outside the city limits. The decision was made in the era of a very conservative government because it was logical, smart business, and even today the director of the program is a non-socialist. Basically, buying has been done on an opportunity basis using good buys as they become available. Money is borrowed from commercial banks, and the land is managed to produce income to repay the loan with interest.

Lands are leased for various purposes ranging from new towns to leasebacks to a farmer for continued agricultural production. By buying over a projected period of 60 years, the city has been able to take advantage of economic cycles, often getting bargains during tight money times.

It's the time factor— buying and planning for use over a projected 100 years— that is so desperately needed by the United States.

Now sixty years later, Stockholm owns approximately 70% of all land outside the central part of the city but within the new city limits. This represents more than two hundred square miles of land outside the city limits, an area which is double the present size of the city. And, I can add, it's a wonderful feeling to stand on the shores of a beautiful lake with community housing set away from its shores, or to land at its airport located in a large forest, without motels stacked alongside the runway.

Land continues to be acquired by the city, either by voluntary or compulsory purchase, with the goal of retaining adequate lands in public ownership to provide for at least ten years of development. While land is seldom acquired through compulsion, national legislation has given municipalities a right of first refusal in any private sale of land which is needed for urban development.

The purposes of Stockholm's land banking program, applicable in the U.S. as well, are threefold:

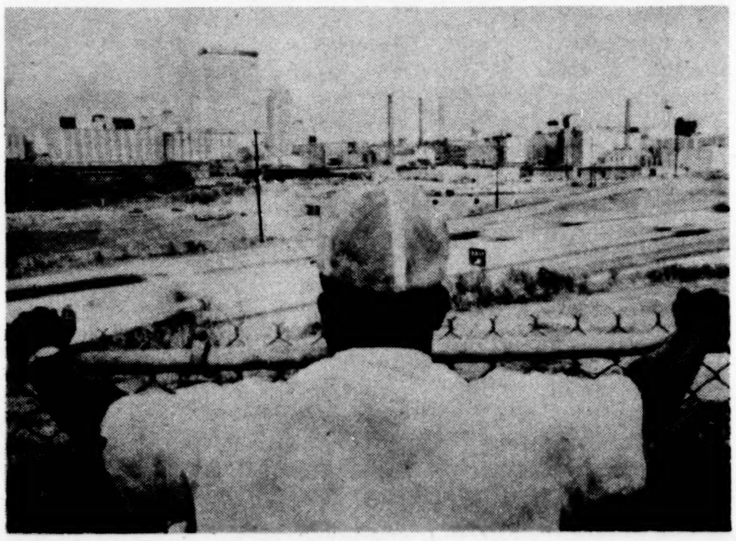
First, it gives the city as a major landowner, control over development patterns. In leasing the land, the city can tell builders when, how, and for what purposes they may build. As a result, Stockholm has been able actually to implement its longrange land use plan, a result unheard of in the U.S.

Second, a purpose of land banking has been to hold down housing costs in Stockholm by preventing land speculation and rising rents. Land banking enables the community to acquire land in advance of actual need for municipal purposes and thus avoid the effect of rising land prices.

Third, land banking enables the community as a whole to benefit from increases in raw land values. Such increases are, after all, caused by the community, and not by the speculator.

Land for building sites is leased to builders and investors, generally for periods of ten years. The leasehold rights include connections to utilities and underground service streets. Leaseholders have been able to mortgage their contracts almost as easily as if they owned the land, and government loans for construction are also available. Today nearly 70% of the dwellings on the city's outskirts are built on leased land owned by the city.[17]. The city is also in the reconstruction business, and may itself develop the land before leasing it.

It is not likely that any current American city would copy the exact system which Stockholm has developed over the years to suit its own needs. But the basic concept can, I believe, be adopted.



IV. LAND BANKING, THE NEED FOR A U.S. MODEL

Thus far I have tried to demonstrate that land banking is desirable, from the standpoint of social policy, and would be in the interests of those most directly affected by land use planning. In the remainder of my statement, I will discuss a land banking model which might be workable in the context of urban America.

Of the literature I have studied on land banking, especially regarding a model for the U.S., four sources were particularly helpful. These were **The Future of American Planning: Requiem or Renasence?** by John Reps; **Land Banking Public Policy Alternatives and Dilemmas** by Sylvan Kamm; **Public Land Banking: A New Praxis for Urban Growth** by Richard P. Fishman and Robert D. Gross; and **Toward An Understanding of General Land Banking at the Metropolitan Scale** by Harvey Flechner. Each describes and defines the subject in far greater detail than I will provide here. Yet I would like to add to these pioneering works some suggestions based on my own years of experience on the implementation end— the nonprofit acquisition of natural areas and park lands.

First, the question of scale will be important in land banking endeavors. Until alternatives are proven, I believe it is important to experiment on a small scale to perfect the structure and methods that we want. We should expect land banking to make its successful appearance at community and regional levels, rather than at the Federal or State ones.

Opportunism will be the key to the success of local land banks. Some communities are lucky: The City of San Diego, California, for instance, has 45,000 acres in its holdings it has acquired previously. It has a land asset base which might allow immediate action. New York City, on the other hand, might require more opportunism, even on a lot-by-lot accumulation basis. Even cities which aren't interested now must at least be ready for unforeseen opportunities— the unexpected bargain chance to buy acreage at its city limits could be the start of a land banking program.

As to a model for U.S. land banking, others have suggested large beginnings, and the Case Western study has a good one. However, to go on that scale requires careful work, including legislative change.

I believe that the idea can be launched sooner on a smaller scale. Several steps are possible. The first is a simple "start now" model using existing effective nonprofit structures such as the Trust for Public Land. It offers a community or citizen's group tax-exempt status, a trusted working administrative concept, a way of acquiring land quietly, and a method of controlling identity relationships with city government. Such an entity would not have condemnation authority.

(My organization, the Trust for Public Land specializes in actual acquisition of land for public purpose and on a nationwide basis. The training of others in the technology of nonprofit land acquisition concepts, and providing our structure to assist communities is of special interest to us.)

A next step is an interim model which would combine formal private nonprofit approaches with local government. Some legislative change could, for instance, structure a redevelopment agency's advantages. A possible model of this is currently being prepared in anticipation of our proposed land banking conference. Again, the expanded Case Western study is excellent and deserves to be read. I will give a brief description:

The model is based on the special purpose public corporation concept. Similar to the New York State Development Corporation, [18.] it argues for a semi-public entity rather than a formal government one. The advantages of such an entity over metropolitan or state structures include flexibility, relief from some traditional government controls including the opportunity to manage its own finances and personnel; freedom from the debt restrictions which currently limit an elected body's impact; (generally it cannot obligate a future elected body), the ability to issue bonds to finance itself and still enjoy benefits such as tax exemption and condemnation authority. [19.]

Since disposition of land is how control comes about, the structure would need to be able to carry out planning, install improvements such as sewers and roads, and lease land to private developers with appropriate restrictions. Financial and legal implications are also discussed.

In operation, the authors note that upon "*attaining an operational inventory, the land bank would begin the continuous process of selling or leasing land to private developers as it becomes ready for development, and simultaneously acquiring cheaper land on the outskirts of the city to forestall premature development. By virtue of its lower holding costs and revenue accrued from leasing policies and ultimate disposal, the land bank may generate substantial profits...* "[20.] (and losses, which they also consider).

Financing is described as being handled either in incremental stages and done on a direct government grant funding basis, or via debt financing.

As a final major point they discuss the creative optimum use of capital, stretching funds to accomplish more acquisitions. Because their concept applies a sound technology of acquisition, including proven techniques such as debt financing, I am confident that it is workable.

In critiquing the concept, Kamm presents some dilemmas land banks must face, and describes the background issues. Although Kamm's discussion remains pertinent, I feel that a three-year time lapse with the changed public mood described earlier has tempered a number of his points.

As one concern of my own, however, I do want to present a feeling of caution regarding early massive funding for land banks.

A. FUNDING SOURCES

(1) The Advantage of Deficit Financing

I am not sure that early direct Federal funding for land purchases would be helpful. Too often it becomes "easy money" that must be spent hurriedly. This often results, I believe, in spiralling land prices. Government-supported loan guarantees or tax advantages would be more helpful than capital. This would assist in luring private lending institutions, such as banks and insurance companies, who would then have incentives to make loans to local land banks.

Another advantage is that a local bank, Savings & Loan, or insurance company lender, unlike a Federal or State land buyer, is part of the local community fabric. It will lend on value and not easily become the basis of questionable values that lead to land speculation. It knows political trends and community needs well, and can become a needed ethical check on a decentralized land banking program.

And ethical control is a major consideration of local lending too. In land banking, as in monetary banking, there are problems of possible dishonesty. Land bank managers would constantly be faced with situations where temptation or conflict of interest could affect decisions. Believing as I do that the thing you worry about never kills you, it would be wise to build in safeguards. Some of these could include local lenders, support by government guarantees with some safeguard requirements, traditional bonding, and possibly most important to have land managers involved in a "new profession" where a code of ethics would be involved.

(2) Start-Up and Operating Funds

Start-up funds would vary, depending on scale. For some, especially those using the experience of existing nonprofit groups, a starting cost could be negligible. Bond issues, like the many current "open space" issues, could become popular as a basis for beginning funding.

Ongoing operations funding could come from several sources. Lease rents revenues is an obvious one already mentioned. Flechner's paper cites Kamm's suggestion of three other sources— transfer fees on real estate transactions, allocation of capital gains taxes in connection with land transactions; and allocation of increments in property taxes resulting from increased assessments in land values. [21.]

Again, these concepts currently are working. For instance, Los Angeles has a transfer tax to benefit open space; Vermont is trying a capital gains tax approach, and the U.S. Forest Service is paying 25% of the income from timber harvest revenues to the county where the activity occurs.

Other variations to be studied include Norway's use of "*special state bonds offered to land owners for their land. The bonds mature in ten years and are exempt from capital gains tax while being held.*"[22.] That is at least a beginning.

(3) The Acquisition Structure, extremely important and too often overlooked, is a matter of acquisition techniques. A community land bank should be set up on a much more effective scale than currently existing public acquisition efforts.

Nearly all governmentally funded acquisition programs today are poorly equipped to implement a land banking concept. As an example, the Federal government pays its appraisal figure or more, never less. Thus, even when adverse market conditions prevail, owners of desirable land have a ready buyer to exploit, and prices stay up instead of falling.

Government has nearly always taken a mastodon-like approach to land acquisition, and the public has been the loser. Point Reyes in California is a case in point, where the value of land to be acquired by the National Park service skyrocketed from $14.7 million to $57 million in less than ten years. An example on the Atlantic Coast was Cape Cod National Seashore, where land prices rose over 100 times from the initial estimate. If we cannot do better than this, land banking will be little more than another method by which the public loses its shirt.

If the community is going to go into the business of land acquisition on a large scale by means of a land banking program, it has to be able to wheel and deal in the real estate field. It cannot be a lamb among wolves as at present. I see several possibilities. Whatever the form, either land banking agencies must have the help of private land acquisition agencies as intermediaries to increase their effectiveness. I'll explain.

V. THE PARTNERSHIP OF THE NONPROFIT PRIVATE SECTOR

For ten years I have served as a professional in the field of private land acquisition, first as Western Regional Director for the Nature Conservancy, and now as president of the Trust for Public Land. The Trust for Public Land (TPL) is a nonprofit organization which purchases urban land at a bargain price through tough negotiating, and holds it for later public acquisition as parks or open space. We have two principal goals: First, to enable governments to buy the open space they need with the limited funds that they have; and second to train professionals in land acquisition, and to teach them an innovative acquisition technology which would qualify them as future land bank managers in addition to effectively acquiring land for parks and open space.

Private organizations like the Trust for Public Land have pioneered a land acquisition technology which could easily double the effectiveness of land banking. By working with creative techniques we can demonstrate that the public will save money and land by being a little more opportunistic. Ideally, the partnership aspect of our helping communities acquire land will rest ultimately with land bank-like structures we can work with, either by assisting in buying, or by imparting our techniques to make public acquisition more effective.

The techniques cover a wide range. They have shown the importance of private land philanthropy. Opportunities exist for gifts of land, especially for park purposes, but government has seldom been able to take effective advantage of these possibilities.

They have shown the importance of timing. A land bank manager able to move quickly could buy land from an owner faced with a cash flow crisis for half its value, whereas the typical government agency would have to simply ignore the opportunity.

They have shown the importance of flexibility. A land bank manager, to be effective, should have the full range of acquisition techniques at his finger tips: long-term options, purchase and leaseback, purchase of development rights, and so on. He should be far beyond the traditional bureaucratic approach which says, roughly, Farmer Jones says his land is worth $5 million, so give us a check for $5 million and we will go out and try to buy it this week.

Secrecy: One reality Stockholm discovered was the need to be able to buy in secrecy if necessary to avoid competing bids and speculation similar to the coastal park examples described earlier. Though a normal public agency would have difficulty in "quiet buying," a nonprofit, highly ethical land acquisition concept would not.

Finally, private organizations have the ability to trade, or facilitate the trade of lands, as a means of accomplishing acquisition priorities. The ability is needed as much as are dollars to buy more land.

VI. A NEW PROFESSION

As the planning profession grew from the need for developmental controls as expressed by the public, I sense the opportunity and need to have land bank managers become a separate profession as well. Reasons include: Talent requirements for planners are much different than those needed for land managers who will be implementers of plans. Finance, real estate law, negotiating ability and a different approach to dealing with people are all involved.

If a land bank were to exist as a companion to a planning commission, for instance, both would operate separately, within the community, but the planning effort would be revolutionized in its ability to implement what it plans.

The knowledge is available. Some are already using it. And the key to land banking success will hinge on the individual manager responsible to the community. TPL believes it is training some now. We are preparing a textbook and a program to complement it.

For a land bank to succeed, a trained manager is essential. Once trained, I believe these managers will constitute a new profession with hundreds of new jobs available.

VII. CONCLUSION

Land banking is needed. The public is in a receptive mood for better growth control, and both the environmentalist and developer will benefit from it. No other such workable answer to our urban land dilemma has been presented.

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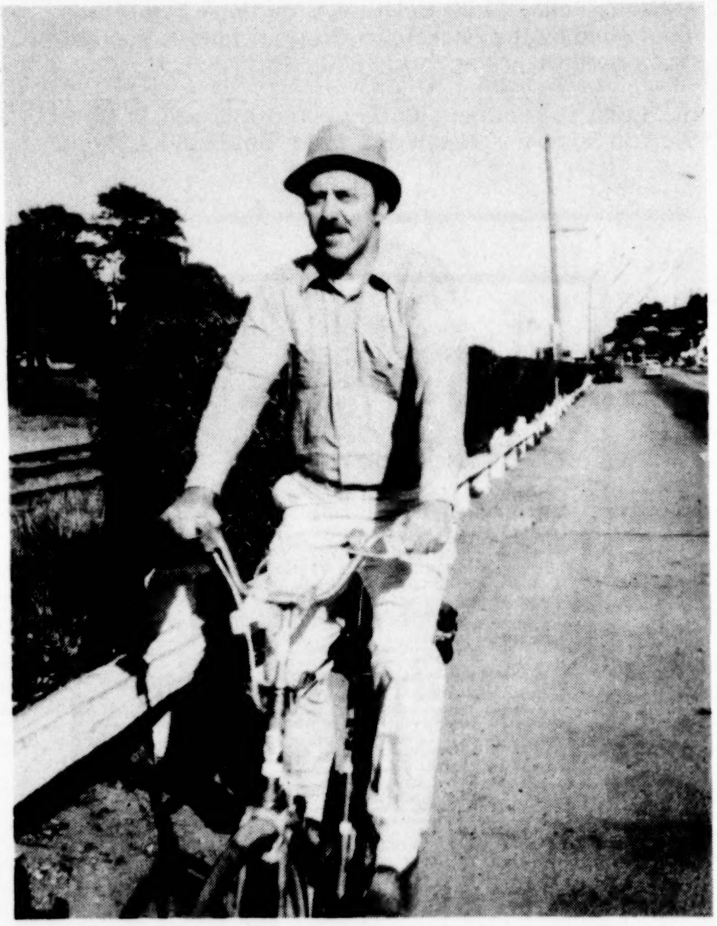

Huey Johnson commutes from San Francisco office to Mill Valley home via ferryboat and bicycle.

FOOTNOTES

1. Richard P. Fishman and Robert D. Gross, "**Public Land Banking— A New Praxis for Urban Growth,**" **Case Western Law Review,** Summer 1972, Vol. 23, No. 4, p. 908; and R.W.G. Bryant, **Land— Private Property, Public Control,** Harvest House Ltd., Montreal, 1972, p. 300.

2. Richard P. Fishman and Robert D. Gross, op. cit., p. 907.

3. Ibid., p. 945.

4. R.W.G. Bryant, op. cit., p. 300

5. Ibid., p. 300.

Box 428, Sausalito, California 94965

6. John W. Reps, **"The Future of American Planning: Requiem or Renascence?" Planning 1957**, p. 55.

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9. Donella H. and Dennis L. Meadows, **"In the Shadow of Malthus," Not Man Apart**, September 1973, Vol. 3, No. 9, p. 9.

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13. John W. Reps, op. cit., p. 57

14. William K. Reilly, op. cit., p. 24.

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16. John W. Reps, op. cit., p. 52

17. Richard P. Fishman and Robert D. Gross, op. cit., p. 909.

18. Ibid., p. 938.

19. Ibid., p. 943.

20. Ibid., p. 962

21. Harvey Flechner, **"Toward an Understanding of General Land Banking at the Metropolitan Scale,"** unpublished master's degree thesis, Catholic University of America, Washington, D.C. 1973, p. 87.

22. Ibid., p. 153.

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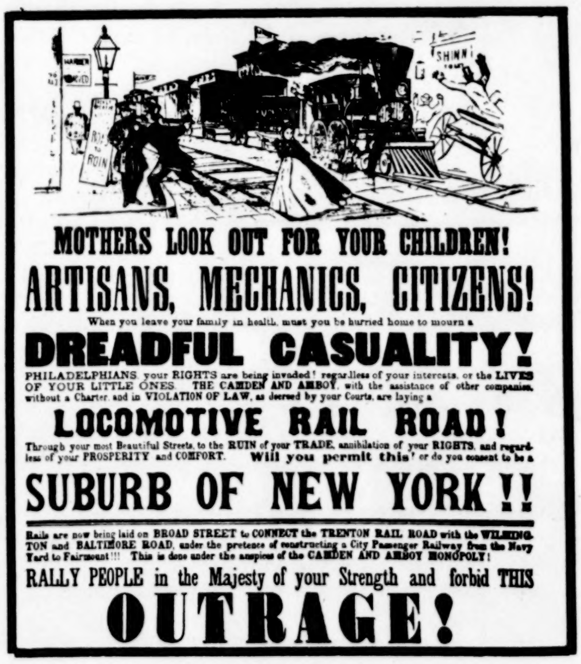

MOTHERS LOOK OUT FOR YOUR CHILDREN!

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When you leave your family in health, must you be hurried home to mourn a

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PHILADELPHIANS, your RIGHTS are being invaded! regardless of your interests, or the LIVES OF YOUR LITTLE ONES. THE CAMDEN AND AMBOY, with the assistance of other companies, without a Charter, and in VIOLATION OF LAW, as decreed by your Courts, are laying a

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Through your most Beautiful Streets, to the RUIN of your TRADE, annihilation of your RIGHTS, and regardless of your PROSPERITY and COMFORT. Will you permit this? or do you consent to be a

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OUTRAGE!

#1067

1067—MOTHERS! LOOK OUT for your children! Poster warns about railroads to be built in Phila. streets. Picture of train labeled "monopoly" running over child, etc. Red and black on white paper, 12 x 15 . . . . 85c

1069—THREE-WHEELED VELOCIPEDE ridden by a man in cyclist garb, about 1880, old train in background. 17 x 19 poster, green paper 90c

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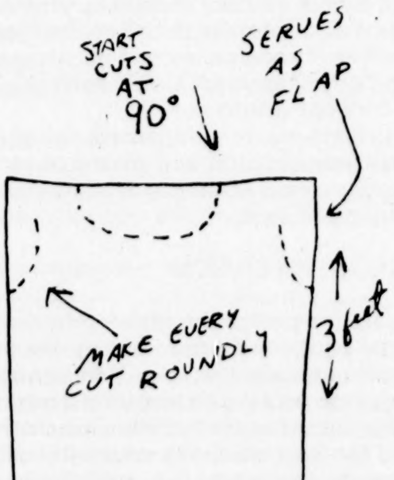
Rainbag

Here in the bottomlands known tenderly as the University of Illinois, when the monsoons roll in, keeping dry can become a problem which brings one to the edge of sanity or whatever. The best solution I have found is a goodold plastic garbage bag. (2 by 3 feet) Just cut holes for head and arms with a razor or x-acto knife and go. This thing is cheap (ten cents) worry free (if it breaks its no great concern, also, they do a fantastic job of keeping from getting holy). If you do use this you still need a hat (dead baby jokes keep me from suggesting using a bag as a head cover). This bag will keep you dry in a downpour. The biggest advantage of the bag is that even if you don't know if it will rain, carrying the beast is no great strain since it folds up into small sandwich size and weighs about two ounces. This is especially good if you live where quick showers are frequent or you have to make a lot of quick runs between buildings. This has saved both my health and down coat many a time. Disadvantages: it doesn't breathe (this is not too bad if showers are quick, you dont exert yourself, or you use it for short periods of time) Since the bag doesnt fan out or have a lip your calves remain exposed and will usually get wet to some extent. I prefer not to cut arm holes; if you do this, don't trip! I hope this can be of use.

Glenn Kowack -
Urbana IL



Shelter

J. Baldwin Writes

Dear Stewart,
After reading just one too many remarks referring to domes that leak and Smart-But-Not-Wise, I'm tempted to get into one of my usual long winded things. In the end, though, it all comes down to this:

Successful hardware is a demonstration of clear thought.

RE solar reflector cookers with parabolic mirrors, as to usefulness. We made a bunch of these about ten years ago. Grease spatter and corrosion of the reflector are big problems, enough to send you back to the Kenmore Range. Moreover, you have to track the sun to get anything cooked, which requires either a slave or some gizmo. It can be done (sic), but it ain't, yet that we've seen.

RE "Draw Tite" tents vs. Poptent. Drawtites are better (they are the best) but not for one night stands where complex pole arrangement is a bummer to set up in the dark. Been usin' mah Poptent nigh onto 15 yars now, more than 1000 nights spent in it! Have never got wet except once in a flash flood. . . .

More on parabolic solar reflectors: You have to be careful where you leave them. I once lit a field on fire inadvertantly, moved the parabolic mirror to another location while we fought fire, and burned a hole in a parked mail truck.

RE ThermX heater I reviewed WEC pg. 247. It's every bit as good as claimed. After two winters, we like it even better. We've also tried domestic counterparts, especially the Coleman which has a safety shut off. None can compare. Heats our 21 foot Airstream fine until the tempratures outside get below 20.

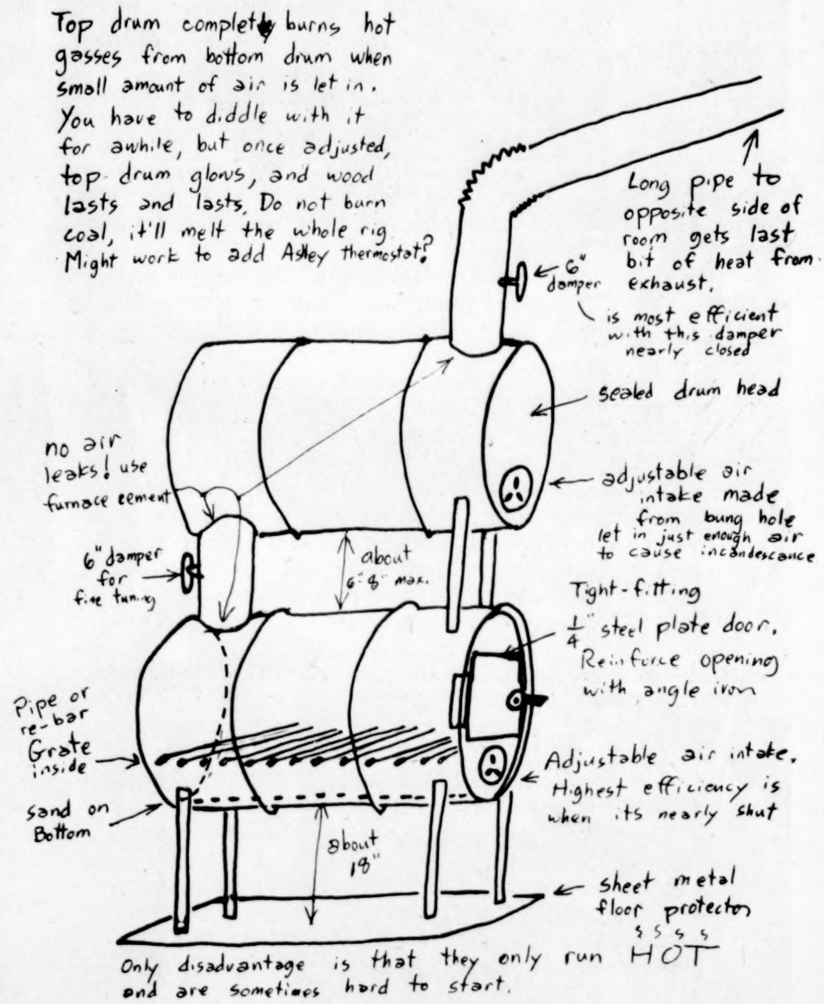
I learned a lot from **Gravity's Rainbow** by Thomas Pinchon. Pinchon has a science education and very good eyes.

RE Airstream Trailers. They are great until the temperature drops below about 15 degrees. Then you have to run the heaters 24 hours a day to keep the water system from freezing. Also, condensation gets bad on the walls. Summers are fine; it never gets above ambient outside temperatures even in baking hot sun here in NM.

RE Brookstone pg 142 WEC. They are nice people. As advertised.

RE boots: If you have super wide feet across the toes, as I have, even Red Wings' last won't do, and most European boots won't even come close. Try Chippewa, Chippewa Boot Co., Chippewa Falls, Wisconsin. They are WIDE! and not badly made either. Mine are still going strong after a whole year of brutality wearing them every day on the job, in all sorts of weather.

RE squeeze-powered flashlights. From experience, I can tell you all that unless you have forearms like Popeye, you won't get more than about ten minutes of light from one, and the last few moments will be accompanied by gritted teeth, excessively speedy heartbeat, and whimpers.

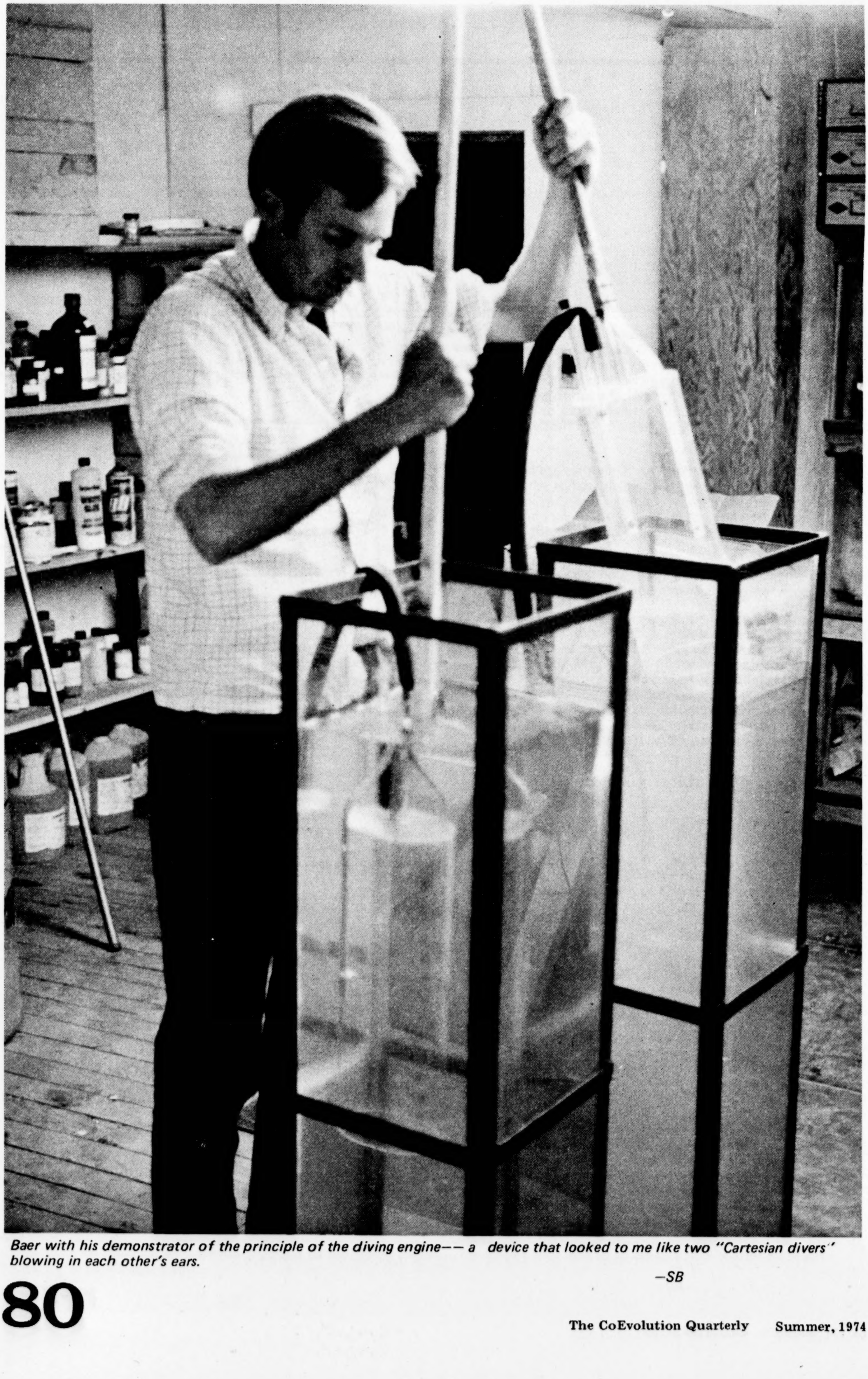

Top drum completely burns hot gasses from bottom drum when small amount of air is let in. You have to diddle with it for awhile, but once adjusted, top drum glows, and wood lasts and lasts. Do not burn coal, it'll melt the whole rig Might work to add Ashley thermostat?
Long pipe to opposite side of room gets last bit of heat from exhaust.
6" damper
is most efficient with this damper nearly closed
sealed drum head
no air leaks! use furnace cement
adjustable air intake made from bung hole let in just enough air to cause incandescance
6" damper for fine tuning
about 6"-8" max.
Tight-fitting 1/4" steel plate door. Reinforce opening with angle iron
Pipe or re-bar Grate inside
Adjustable air intake. Highest efficiency is when its nearly shut
sand on Bottom
about 18"
sheet metal floor protector $$$$
Only disadvantage is that they only run HOT and are sometimes hard to start.

Someone tells me this is in Mother Earth News ~~too~~ and maybe even LWEC but I missed it. Anyway, it works super good.

J.

RE woodburning stoves: Whilst living in Alaska for 2½ years, I noted that the most economical and efficient wood heater was made from two 50 gallon drums (the heaviest type) in the following way. I'm told that kits are available for converting drums thus, but I don't know where to get one. Properly adjusted, they do not creosote the flue, as everything gets burned. They'll burn the fuzz off a Mackinaw at 8 feet, and some I saw had a fence around them to prevent accidents!

REMEMBER! it takes longer to grow trees than to burn 'em.



Baer with his demonstrator of the principle of the diving engine—— a device that looked to me like two "Cartesian divers" blowing in each other's ears.

—SB

Gravity Engines and the Diving Engine

BY STEVE BAER

Steve Baer's is a mind I like to watch working. His creativity and his morality are so fruitfully entangled that his inventions––and his words––cut deeper than most.

Baer, 35, is the head of Zomeworks in Albuquerque, NM, where you may buy skylids, solar collector plans, bead-walls, zome dwellings, zome toys, **The Zome Primer**, *and stock in the company.*

–SB

Perhaps someday mechanical energy will be hard to get. Windmills will then be widely used and perhaps also solar powered engines. Cells which convert sunlight to electricity such as the silicone solar cells may become much cheaper and be widely used, but then again they may not. Today no one seems to know what will happen after oil and coal become scarce.

I feel very comfortable with equipment that is simple, easy to understand and easy to repair. I feel uncomfortable with equipment that is complicated, dangerous and which requires enormous varieties of parts. I feel a love toward waterwheels and windmills, but I fear nuclear power plants. I believe most people agree with me.

Engines and mechanical power are a big factor in our lives. It seems to me we should be building many varieties of engines today to see which ones people get along with, which ones are more trouble than they are worth and which ones are too dangerous. There are some things which people will do without in order to be free of fear or in order to be free of the control by others. I would like to suggest that some species of solar powered gravity engines may be particularly useful and pleasant. They would be stationary, but this might turn out to be a relief to almost everyone.

I think that the diving engine is the most promising of the gravity engines shown here. There are many different forms in which it can be built. They are easy to construct and easy to repair. I am afraid a commercial market for something as big and bulky– however silent and long lived– as the diving engine is more than a few years away in the USA, but this may not be true in some other countries.

Our luck at Zomeworks with proposals to the National Science Foundation has been 0, actually less than 0 figuring the time wasted. Who will step forward to pay for the development of something as unfashionably slow, huge and silent as the diving engine?

Gravity is the most beautiful of forces––it never sleeps, it never forgets you––it spends forever attempting to finally rank everything within its field– heavier down, lighter up. While it is slowly shifting mountains or bringing rotten branches to the ground it is also shaping clouds in the sky above them. It takes on the shortest and the longest jobs, holding the moon forever in its orbit or bringing in another raindrop. When a scale says, "no springs", you are confident because masses pulled by gravity are balancing against other masses pulled by gravity.

A gravity engine is an engine that relies on gravity to function– it is not a perpetual motion machine anymore than an engine which uses a flywheel or a spring in its mechanism is a perpetual motion machine. Gravity engines don't run off gravity, they need it to function. Gravity is a necessary but not sufficient condition for their operation.

Gravity engines would not work aboard a spacecraft. An electric motor attached to a battery will work– a gasoline engine will work, a turbine will work.

Hydroelectric power plants are gravity engines, waterwheels are gravity engines too. Wind is part of the most enormous gravity engine. Gravity engines require a certain orientation of their parts. Gravity engines use gravity as a gigantic spring to push and pull against. This spring doesn't wear out, nothing can slip past it, it is free. It is an energy bank that can't be robbed, it always gives back all of what you gave it.

Probably the most fascinating gravity engines are convection engines, but I am not going to discuss them.

In the spring of '73 I visited the US Patent office at Crystal City, Virginia. The Patent office is like a mixture of a public library and a pool hall. The men searching the shoes are largely in late middle age or old age. They are stooped, many with mustaches, pot bellies and bald heads. Unlike people in a library, they do not work quietly unless they have no reason to make noise. They call out to each other and speak loudly while standing next to others who are reading. At first I was shocked that they made no effort to keep quiet. But later I realized that there were very few people there who needed it to be quiet. Most work in the patent office consists in flicking through endless stacks of patents glancing at the illustrations.

A kind of numb hopeless weariness gripped me after two hours of sorting through the shoes. (That's what the files are called.) What about these men who spend thirty or forty years here? They all stoop– first it is just in their faces if they are under thirty– then by the time they are thirty five both the face and posture have slumped. How else could the patent office be? Who else would the patent office attract? Einstein worked in the Swiss Patent office which I puzzle about.

In my day and one half I found several patents on perpetual motion machines in the no. 60 class. They may in fact have been perpetual motion machines to be used as paper weights or bird cages or some other extraneous feature that finally allowed some man to have a copy of his dreams placed in the patent office. But the illustrations were of machines that were powered from the forces of "gravity and bouyancy" for example. I asked an examiner sitting next to me and he admitted that some such patents slip through. He remarked, "what harm can they do?" with which one must agree.

I also discovered two patents issued in 1972 and 1973 which had whole drawers full of prior art already describing exactly all their features. Since one had to do with an idea I was searching I brought it to the attention of Mr. Ostrager who was assistant examiner in the case. He was surprised and he pointed out that the prior art I'd found was in section no. 60-22 which, as noted at the top of the new patent, had not been searched. They missed it! All this leads to a lack of faith in the patent office. The examiners do not seem alert or dilligent, but, perhaps more important, they are friendly. Their rooms are decorated not like men's offices in a business, but more like temporary offices in the military— a guard house or a CQ's office. They tape pictures on the concrete block walls in an attempt to crud over with personal signs a powerful and permanent superstructure on which they feel dependent, but feign a distance to.

The patent shoes with old patents were ragged and torn. Certainly with the state of technology we have the patent office could be indexed and cross indexed and preserved on microfilm— as I am sure it will be— but there is an attraction in the tattered papers, old stooped men slapping eachother on the back and the jive talking black secretaries and clerks.

Most of the secretaries are young black girls who I am told were hired after the riots in the '60s. They don't make as much noise as the old searchers among the shoes, but they are always talking spade jive talk. Again, like the examiners, they are friendly. The black secretarial staff, rather than being officious as you'd expect in a place like the US patent office, is perceptive and human. They don't give a damn about patent numbers. At least 25% of my orders for copies of patents have been filled by the wrong number patent. It's interesting reading anyway.

US patent laws seem to me to be very good. They encourage openness and fast disclosure. You can publicly disclose an idea and you still have a year in which to file a patent (which I may do with the diving engine). Many countries have laws which force you to keep your work secret until you have filed a patent. Unfortunately filing patents is expensive and it is almost never worth the money. Even if you do get a patent it doesn't mean much until you have defended it in court. Patents are often granted that shouldn't be and this comes out when a patent is challenged by people who have done their research.

ISKE ENGINES (I don't know if this is the proper name. I doubt that he was the first to invent them, but he was early anyway.)

A. & A. ISKE.
MOTOR.
No. 256,482. Patented Apr. 18, 1882.

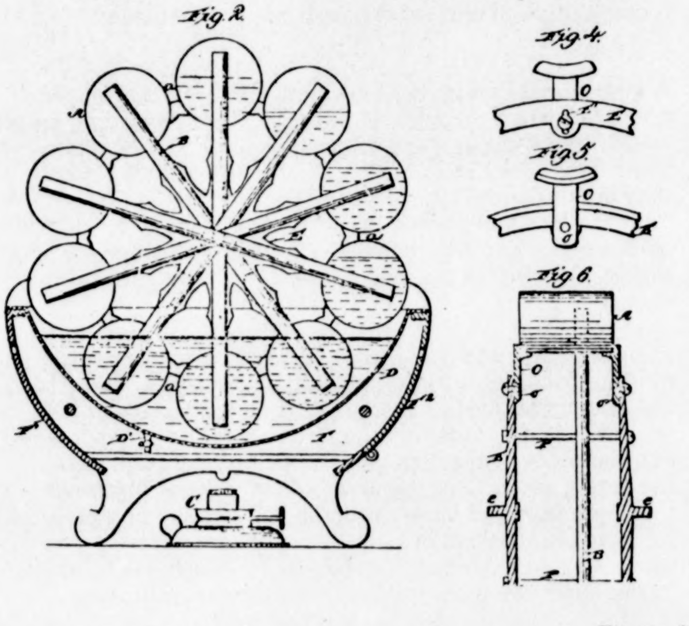


Figure 1

Here is a gravity engine invented in 1882 by A&A Iske. A series of pairs of chambers are connected by tubes across the diameter of a wheel. Each chamber is heated when it is at the bottom of a revolution. Vapor forms in the liquid and the vapor pressure drives the liquid to the other chamber at the top. The weight at the top proceeds to turn the wheel. It is like a water wheel which supplies itself with its own water. No such engine of this type can function well unless the containers and connecting tubes are purged of foreign gas— leaving only the working liquid and its vapor inside the containers.

This device has been invented and reinvented for years. The latest patent issued for this idea that I saw was no. 3,659, 416— 1972. It would be nice if these engines, solar powered, were used to run clocks in public places. Then their delightfulness could be appreciated by all. And the ingenious inventor could be relieved that the idea was already born, and wouldn't need his labor pains to appear in the world.

This type of engine is extremely inefficient since the heart of it, the bubble of hot gas that expands pushing the liquid upwards, can't expand until the container and the liquid are heated. Likewise the top container and the liquid entering must be cool to allow the previous old bubble, born ½ a revolution before, to condense.

This is an enormous requirement in heating and cooling to prepare the way for the lifting of a tiny amount of liquid. One can move towards greater efficiency in such a design by using lightweight containers, large diameter wheels, special liquids— even some very special heat exchangers could be employed, but I think it is best left alone to be inefficient, very reliable and intriguing. What turns it? If, for every action there is a reaction, where is the reaction to this wheel turning by itself? Stronger gravity could make these engines more efficient because, with every cycle of vaporization in the bottom cylinder and condensation in the top, with their enormous demands of heating and cooling, there would be a greater reward in the delivery of the now heavier liquid in the top container. With stronger gravity the bottom container would, it is true, have to be heated to a slightly higher temperature. But we haven't struck at the basic flaw in the design which is having to heat and cool so much mass just because it is in contact with what we are interested in. Later I will show a design that solves these problems.

The dipping bird is also a gravity engine. It has similarities to the Iske engine, but it is much more efficient. In the dipping bird gravity engine the boiler stays the boiler and the condenser stays the condenser. This is a big gain over the Iske engine where the same containers are both boilers and condensers. With the dipping bird we don't need to throw away energy heating the condenser every cycle so it can become a boiler and cooling the boiler so it can become a condenser. I think there is promise in the dipping bird as an engine. Some of the problems are; 1. purging containers of foreign gas, 2. sealing containers, 3. building containers large enough to deliver useful power that can still withstand the crushing pressure of the atmosphere, 4. wasting boiler gas when the bird dumps, 5. drag of liquid through pipes.

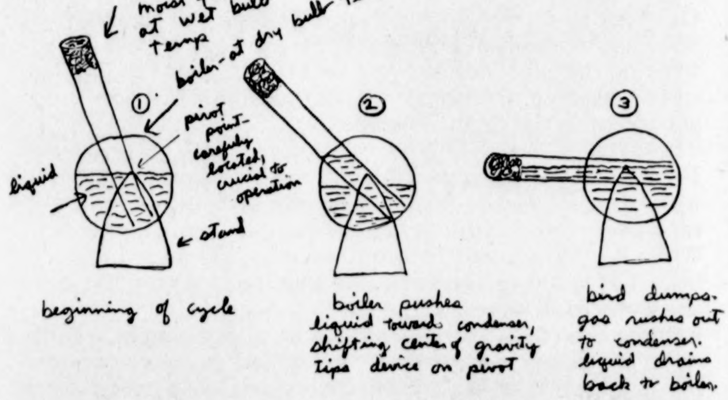

condenser- moist felt at wet bulb Temp
boiler-at dry bulb Temp
①
②
③
pivot point- carefully located, crucial to operation
liquid
stand
beginning of cycle
boiler pushes liquid towards condenser, shifting center of gravity Tips device on pivot
bird dumps. gas rushes out to condenser. liquid drains back to boiler.

Figure 2

The great disadvantage of the devices shown in figures 3 and 4 is that the top condenser keeps receiving heat which has in no way contributed to powering the wheel. Only the vapor from the bubbles should be allowed to condense. The other flaw in these designs is that pressure increases with depth and thus it is harder to boil liquid at the bottom of a deep container than it is at the top. This design stirs the liquid continually keeping a fairly constant temperature and thus promoting the formation of bubbles near the top that won't deliver work by flowing into the rising cups.

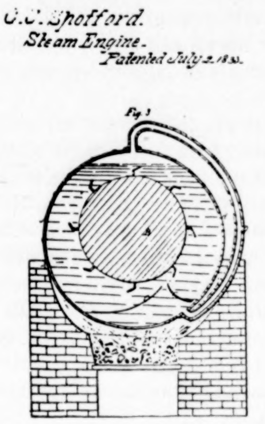


Figure 3

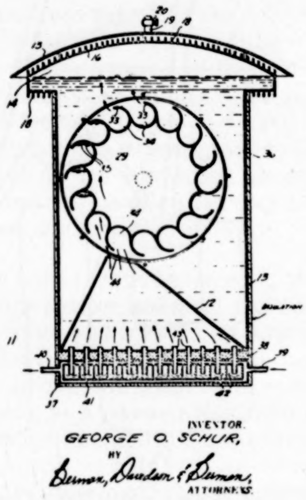


Figure 4

One partial remedy to the inefficiencies of the bubble wheel is the two liquid bubble wheel.

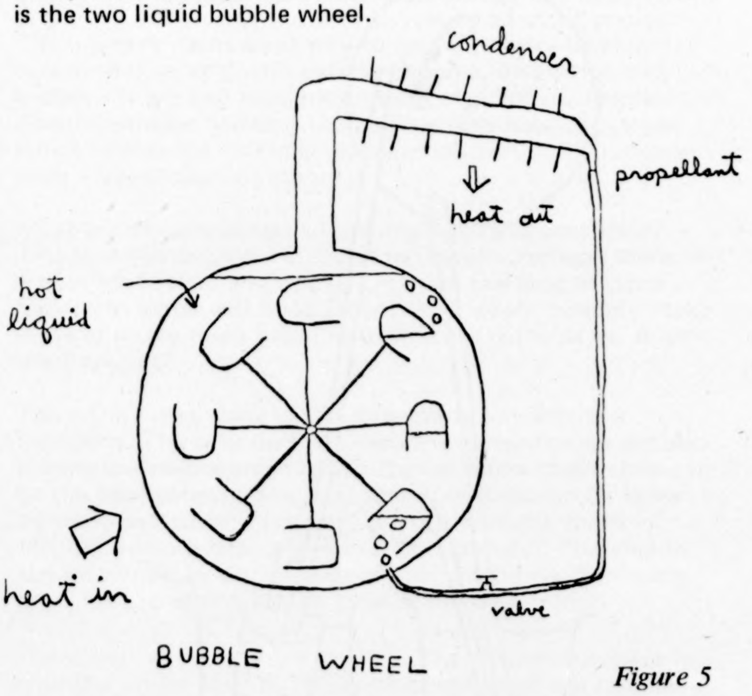


Figure 5

Here there are two immiscible liquids such as hexane and water. The liquid with the higher boiling point is used as the bath for the wheel. The other liquid is used as the propellant. In this way boiling at useless points in the bath can be prevented and the machine can be turned on and off, or its rate controlled by the valve shown. It is simplest with such engines if the propellant is lighter than the bath for this prevents it from ever stalling by finding a cool position at the bottom of the bath and settling there. If the propellant is lighter than the bath, as hexane is lighter than water, it will float on top of the bath even after the engine has stopped— waiting to respond to the first heat introduced to the bath. A light propellant must have a tall tube below the condenser in which it can build up head and force its way into the bath. In a sense its trip as vapor to the condenser is like the power stroke of the more conventional feed pump in a steam engine. The bubble engine becomes more efficient as it becomes larger and also as the vapor pressure of the bath decreases. Its efficiency is also controlled by the difference in temperature between the bath and the condenser. But these mechanisms are helpless to exploit the efficiency available past a certain point. The pump version of the same idea is shown below.

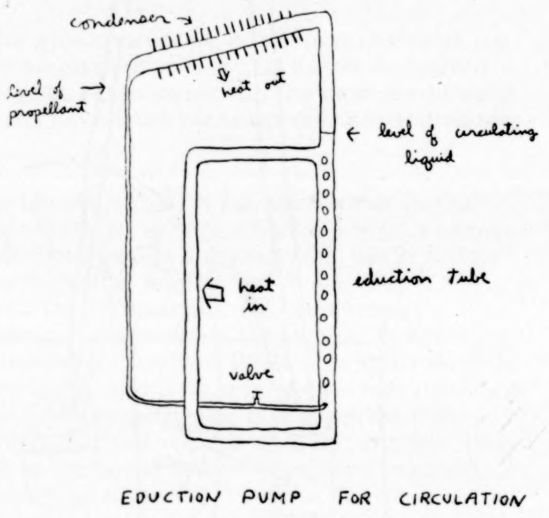
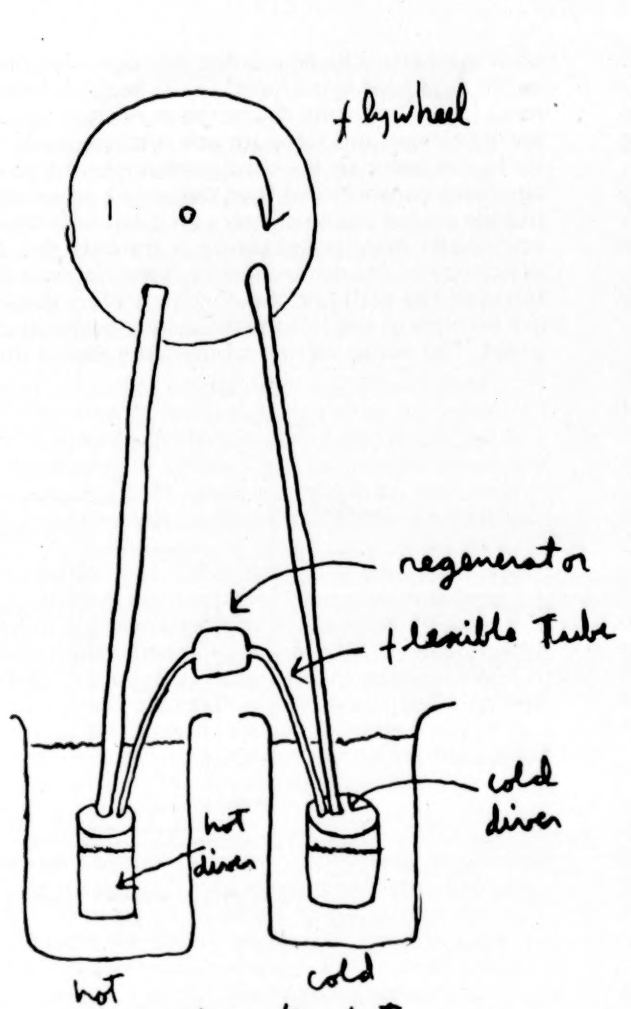


Figure 6

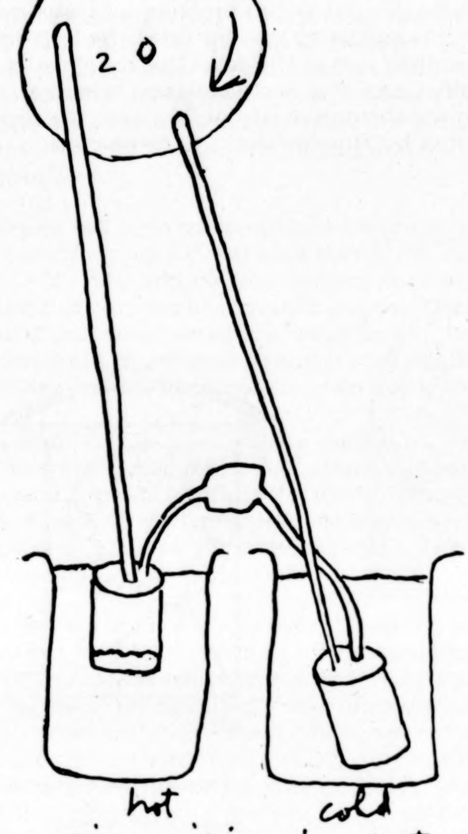
The pump version could be useful in solar heating systems that require forced circulation.

What is wrong with the bubble wheel gravity engines? They must turn through baths, and baths have a great deal of resistance. The ones shown in figures 1, 2, 3, 4, & 5 require clean tanks purged of foreign vapors. They require some method to transport mechanical energy through the wall of a closed container. There exist good seals that allow this with little friction and there are magnetic couplings that transport torque through sealed walls without ever so much as suggesting a place for a leak. But they aren't that easy to make. There is also the danger of explosions. If the engines are overheated they can explode and liquids, like hexane, burn. The true spirit of the gravity engine will not tolerate such fussy techniques as vacuum purging and vacuum seals or such vulgar dangers as explosions and fires.

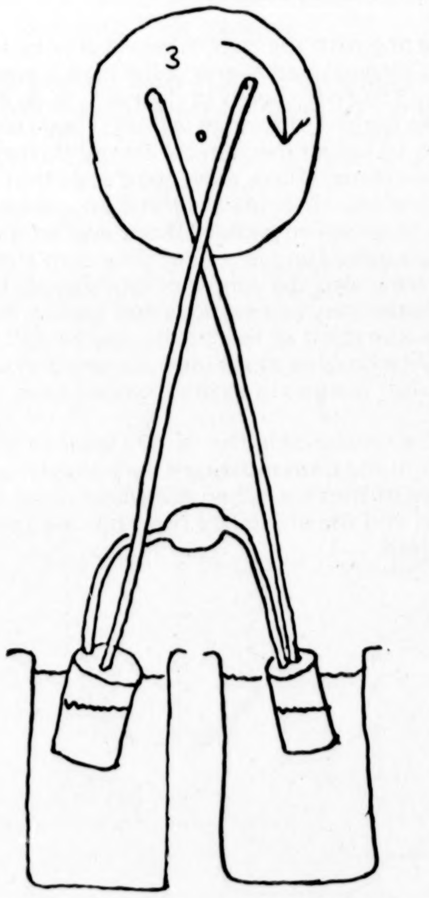
What of the resistance in the bath? How can the wheel turn? The wheel in the bath must turn very slowly or there will be a great deal of friction. When the wheel slows the friction disappears, and the efficiency rises, but the rate of delivery of power falls.


flywheel
1
regenerator
flexible Tube
cold diver
hot diver
hot
cold

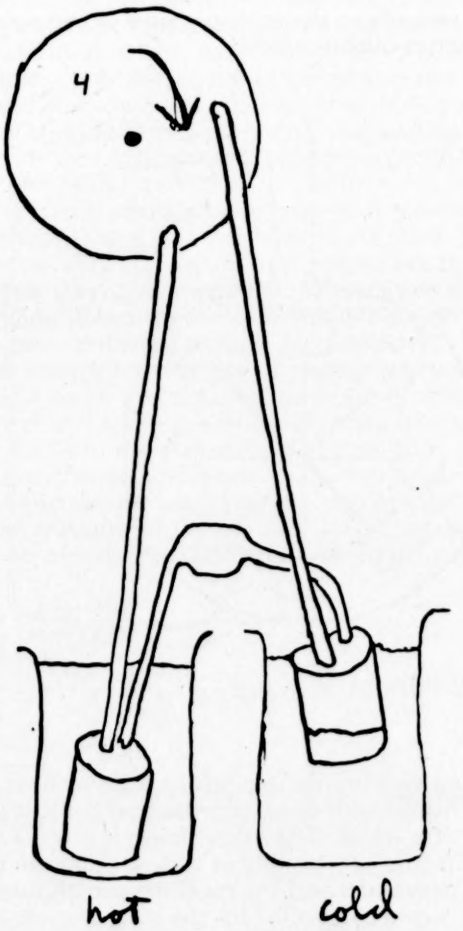
air passing to hot



air rising in hot



air passing to cold



air compressing
in cold

As the flywheel spins the pistons go up and down. The hot piston is shown to be placed ahead of the cold piston when the wheel rotates clockwise. When both pistons descend the hot piston is ahead of the cold piston. The air is free to pass between the two pistons and, thus, stays in the cold piston for it is higher than the hot piston. This is what we want. The air compressed in the cold cylinder. At the bottom of the revolution the cold piston comes even with the hot piston— passing the air to it through the regenerator. The air then rises in the hot piston where its volume and thus its bouyancy is increased. The difference between the work required to compress the gas on the cold side and the work available from the larger rising bubble on the hot side is the energy available from the engine.

If the temperatures are low the volumes found at equal depth on the hot and cold sides are near to proportional to the absolute temperatures of the two sides. As the temperature goes up so does the vapor pressure of the water and the air is invaded by water vapor and the bubble swells rapidly. At atmospheric pressure a quantity of gas saturated with water vapor will be 50% larger at 140^{0} F than at 60^{0} F. Working at such temperatures, the engine takes on characteristics of a steam engine rather than a hot air engine. If this is undesireable the pistons can be enclosed in a bag of another liquid with less vapor pressure such as glycol.

Regenerator: the air passes back and forth between pistons. Each time it tries to cool the hot piston and heat the cool piston. This is useless to the engine and a waste of energy. A regenerator along the tube corrects this, it robs the gas of its heat as it flows toward the cold piston, but returns it to it as it flows back. And, likewise, in a wave at the other end of the same regenerator cold is being stored as the gas moves toward the hot piston and returned to it as the gas returns to the cold piston. The engine will run without a regenerator as we proved with the engine constructed at Zomeworks. But it cannot attain great efficiency.

In some ways a regenerator seems to work in defiance of the laws of thermodynamics for it steps in and very simply and positively transforms the entire cycle of a hot air engine. The universe trains us so well to expect things running down— hot mixing with cold to become luke warm and useless— it is a real revelation to discover the regenerator. Another similar device is the counterflow heat exchanger which allows the exchange of materials across a boundary with the retention of heat.

What are the advantages of the engine I have described? This is something very difficult to discuss. Perhaps there are no advantages whatsoever. Perhaps the drag of parts moving in water will be so large that it won't possibly make sense or likely there are other unforseen difficulties. Aren't there always?

The engine uses some of the same parts for different functions. The cylinders in which the pistons move are also the heat or cold storage tanks: the cylinders themselves can be the heat collectors or heat radiators. This can be done by using moveable insulation in front of them. Such techniques have been proved to be successful. The engine can be turned by outside power such as the wind to store heat, for the engine can be an efficient heat pump.

The pressures everywhere are low. The temperatures are low, typically under 160^{0} F. The components used are familiar and don't require research to fit them for unusual stresses. The cycle is simply one of heating and cooling air and evaporating and condensing water.

The noises such machines make are slow and peaceful, gurgling and thumping noises rather than high speed whining noises. The parts are easy to repair. Some tape, some solder, a stick whittled to shape, some chewing gum.

This is the kind of technology that doesn't depend on long chains of other specialties for its day to day survival. Of course, it's true that if the engine includes sheet metal, you won't be able to build them without steel mills, but why not make the steel mills as small as possible?

A recurring problem with heat engines is the heat transfer to the working gas. The normal stroke of an engine happens very rapidly and the surface area available to give heat to the gas is limited. Consequently, you pay for high temperatures, but aren't given the efficiencies you pay for. With the type of engine described here, the inside of the pistons can be filled with what we have named "seaweed", a material that dangles inside the cylinder to promote heat transfer and rapid vaporization of water. The ultimate enemy in such an engine is drag. Bill Mingenbach has suggested using a "seaweed" that would float inside the pistons and, thus, not retard the filling or emptying of the pistons.

The regenerator also alternately humidifies and dries the air. Hot, moist air passing to the cold piston condenses its water within the regenerator. On the next stroke cold air passing to the hot piston picks up the heat and water together.

What brand of engine is this? It has similarities to the Stirling engine where gas is passed back and forth between a hot & cold piston through a regenerator, but it differs from the famous Stirling engine in two respects. The gas is passed back and forth through the regenerator at approximately constant pressure rather than at constant volume as in the Stirling engine. What does this mean? In the Stirling engine the gas is caged between two pistons as it passes through the regenerator. If it is heated the temperature rises, but the volume does not change. In our engine as soon as the gas is heated it begins to expand because the liquid surrounding it cannot confine it with a force greater than that given by gravity. The other difference is the presence of a liquid and a vapor and the use of evaporation and condensation to exaggerate the expansion and contraction of the bubble. The cycle in the engine is perhaps most similar to the less well known Ericson engine, where hot air is sent through a regenerator at constant pressure rather than constant volume.

Let us assume that we can capture 2000 Btu/ft.^{2} as heat in a solar collector. (This is very optimistic. It's a good number for us to take because it puts a high energy density demand on the engine.) Let us also assume that because of the cold tank and hot tank temperatures we should be able to convert 15% of the heat energy to mechanical energy.

We don't expect to get all the 15%— in fact we should be happy with between 5% and 10%, but it is a good figure to use to see what demands the engine should meet. A 15% maximum possible conversion corresponds to the following pairs of hot and cold tank temperatures:

Winter— 45^{0} F
135^{0} F

Summer— 70^{0} F
165^{0} F

in accordance with Carnot's $E \max = \frac{T\ \text{source} - T\ \text{sink}}{T\ \text{source}}$

Let us agree that we have twenty four hours in which to convert our 2000 Btu of heat to (.15) (2000) = 300 Btu of mechanical power. Can our type of equipment do this. Is the power density too great for the engine to convert?

$(300\ \text{Btu})\ \frac{778\ \text{ft. lbs.}}{\text{Btu}} = 233{,}400$ Btu, round off for convenience to 240,000 ft. lbs./day. Or, 10,000 ft. lbs./hr. = 167 ft. lbs./min. or, 2.75 ft. lbs./sec. mechanical energy/ft.^{2} of engine.

Let's assume; air is submerging and emerging 15% larger. In one half of our square foot it is submerging = in one half of our square foot it is emerging 15% larger. The larger the bubbles, the more slowly they can move. What is the product of the bubble (in H_2O) depth times velocity that we need in order to deliver our 2.75 ft. lbs./sec.

It seems we need $\frac{1 + 1.15}{.15}$ = 14.3 times the volume displaced by 2.75 lbs. of water moving at 1 ft./sec. or,

$$\frac{2.75}{62} \times 14.3 \text{ ft.}^2\text{/sec.} = .64 \text{ ft.} \times \text{ft./sec.} = 7\ 5/8''.$$

Written out, we say, "if under every square foot of horizontal surface we have a bubble about 7½" deep moving at 1 ft./sec. submerging in the cold half of the engine and emerging (about 1" thicker) in the hot half, then we have a chance of directly capturing 15% of 2000 Btu/ft. as mechanical energy during 24 hours. "Our .64 ft.^{2}/sec. can also be supplied by a bubble 4 times as deep— about 30"— moving at ¼ the velocity ¼ ft./sec. or 15'/min. or any other pair with this same product of (thickness) (velocity).

A DISCUSSION OF ASSUMPTION

Encouraging

We have assumed our hot bubble is only 15% larger than our cold bubble. It must be at least this different since our starting point was to assume the absolute temperatures differed by this amount. If we are using air bubbles and water, the difference is going to be much larger. Perhaps an increase of 50% rather than 15%. This lets us decrease the (thickness) (speed) product about three fold.

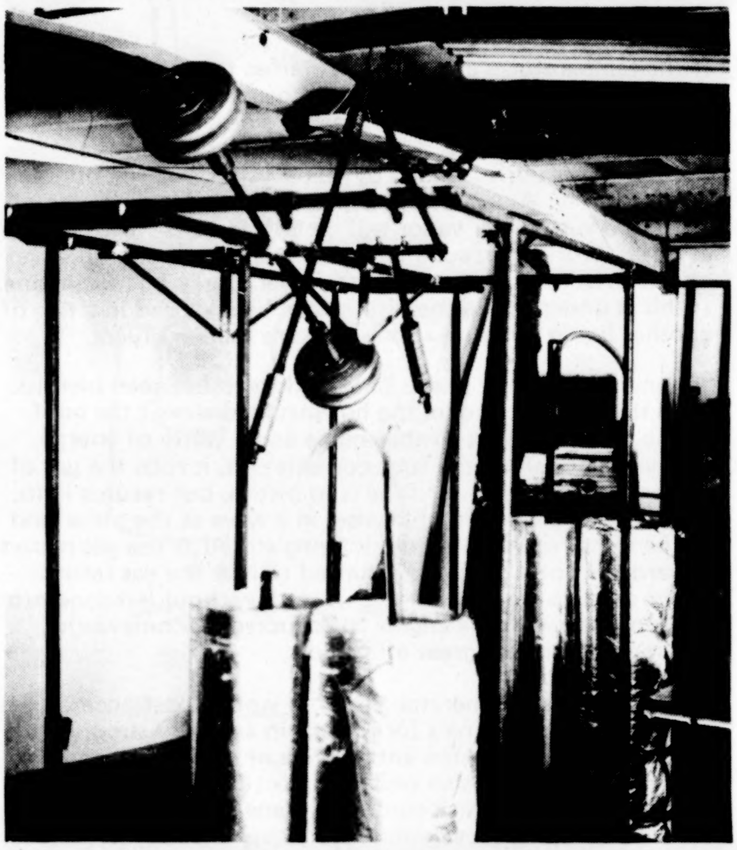
Discouraging

Whatever mechanical contrivance it is that submerges and emerges our bubbles it probably must move through the water on its return stroke and thus the drag of our pistons or containers is about double what we might calculate as an optimum. Above and beyond the drag of our pistons or containers moving through water we have the drag of the air moving back and forth through the tube and regenerator— between the hot and cold containers and we have the friction of bearings and mechanical couplings.

Such hasty calculations as these do not guarantee any kind of success in a project, but they often can show that a design simply won't work. I believe that this isn't the case- that these calculations show that the energy density of sunlight is compatible with the possible density of production of mechanical power of a gravity engine here on our planet using water and air and slow moving, 6 ft.— 60 ft./min. containers.

The world needs engines that operate with air, water, sunlight and the simplest mechanisms possible. It needs engines that could be breeding stock for other engines. If the world were desolate of equipment, the only remnant of today an enormous library in a dry cave showing us the past, and we wished to rebuild, where would we start? We could hardly start with nuclear reactors or internal combustion engines. We would first use water wheels and wind mills and from them go on to heat engines. It is an interesting challenge to invent new devices that are useful and which could appear very early in the development of technology.

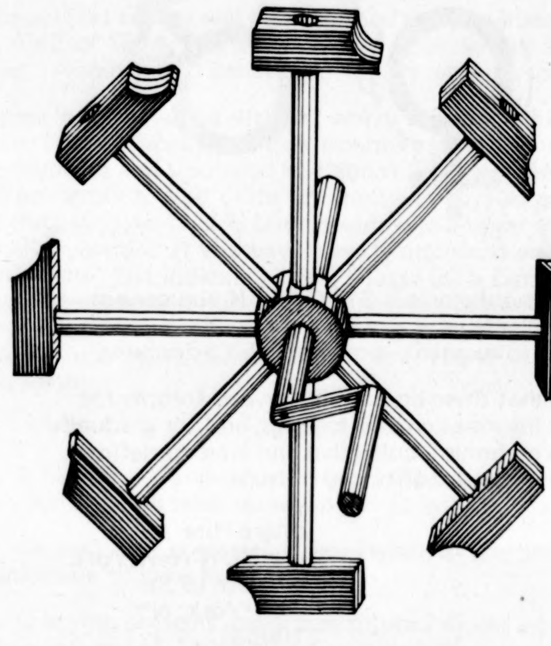
> There are humans and creatures wandering around on the globe which spins as it slowly circles the sun. The humans climb on top of each other and breed, producing more humans. The creatures climb on top of each other and breed, producing more creatures. The humans also pick things up with their hands and build other things. Very slowly the things they build with other things become complicated until their origin from the other things is not clear. That they are things is only established when they are never discovered to be breeding and reproducing as creatures do, but are discovered to be produced by other different things. There are, of course, always some doubts.
>
> **God is happy to renew the contracts of the creatures, they take care of themselves and each other in their own ways. God does not know what to do about the things. They don't answer when God speaks to them so God speaks to the humans, but the humans are so busy building things with other things that they hardly ever answer. "Just a minute, I've got to fix this thing."**



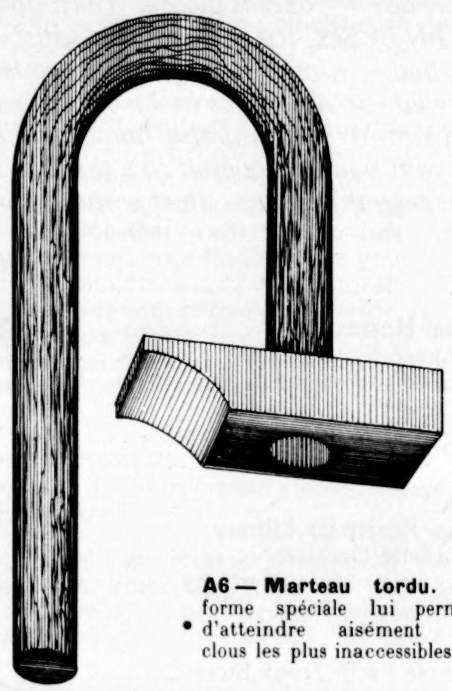
This is a photograph of a counter weighted diving engine. The hot tanks are on the right, wrapped in insulation. The cold tanks are on the left. The engine ran with a hot temperature of 120° F and a cold temperature of 60° F. The flywheel consists of four 25 lb. weights at the ends of a pipe and another 20 or 30 lbs. of 1" washers at the ends of a cross pipe. The one gallon diving pistons are suspended from 1/16" cable passing over pulleys above the tanks. The hot diver is about 60° ahead of the cold diver and the front and back pair of pistons are 180° out of phase– as the front pair sinks, the back pair rises. This engine had very little energy left over after overcoming its own friction, but it did run on the very first attempt, thus demonstrating that there are at least no thermodynamic contradictions in the theory of the diving engine. The engine ran at between and 4 and 6 rpm and the divers had a stroke of 2'. The divers are connected by a 1" rubber hose. No regenerator was used in this first model. The engine is almost completely silent.

CATALOGUE D'OBJETS INTROUVABLES

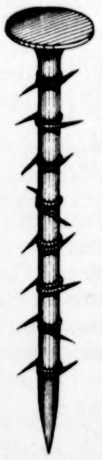
[Sent by Heinz von Foerster]



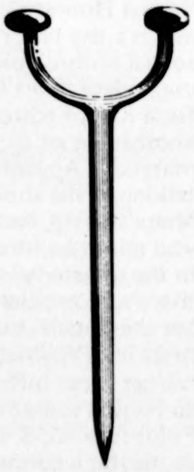
A7 — Polymarteau. La rotation rapide de ce marteau à huit têtes fait gagner un temps considérable aux professionnels et aux bricoleurs.



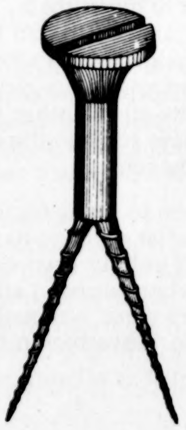
A6 — Marteau tordu. Sa forme spéciale lui permet d'atteindre aisément les clous les plus inaccessibles.



A9 — Clou barbelé. Une fois enfoncé, ce clou est garanti absolument *inarrachable!*



A8 — Clou bicéphale. Idéal pour les bricoleurs atteints de strabisme divergent.



A10 — Vis à bois bifide. Pour unir deux planches il suffit de faire pénétrer cette vis. Solidité garantie.

Access to Neighborly Tools

Dear CoQuat—

Got an access to tools notion for you. Seems private property solves the responsibility question. If something is mine, I look after how it's treated or I have to buy a new one. Lots of us have seen how responsibility often gets lost in the cracks between us when we go to communal ownership. But what common ownership does right is see that tools get used. They don't sit around in my basement until I want them.

The problem is melding responsibility with efficient access to durable, only-occasionally-used tools. I don't have an answer, but do have a notion some folks might want to try out. The idea, of course, is a tool exchange. Makes no sense to try to own everything you might want to use. The set up is built around a local catalog of available tools. It's updated maybe twice a year and gives listings describing tools, terms and owners. Owners contribute the listings, you charge for the catalog to cover printing costs.

No reason an owner can't charge to loan out his tools. Somebody has to pay for the thing and knowing that the costs can eventually be shared may encourage some folk to invest in very fine and esoteric tools and to put them into circulation. Rates get worked out between owner and borrower. Catalogs' only involvement is the listings and perhaps publishing form rental contract and liability disclaimers.

Seems about anybody who had a mind to could rouse up a catalog. Obvious listing material includes trucks, chain saws, rototillers, ice axes, portable generators, alphameters, skis, horses, P.A. systems, hang gliders, socket wrenches, kayaks, kilns, hoists, calculators, fruit presses, cameras, bikes, welding torches, surf boards, tents, boats, canning equipment. . . . 'nuff said—

Gunnar Erickson
New Haven, CT

Community

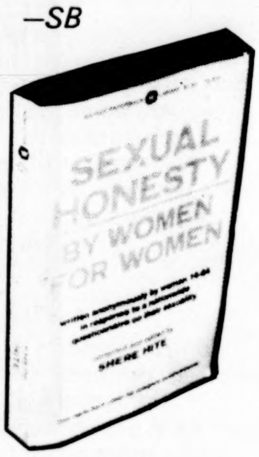
Sexual Honesty

I believe this book has found its way to the very center of interest in sex books: What do other people do?—— details please. Textbooks, including **The Joy of Sex**, *try to generalize satisfaction for everybody. Kinsey found, and Shere Hite proves, that wild variety throbs in American bedrooms. Furthermore immeasurable human unhappiness goes with painting oneself in a sexual corner. The out is sexual honesty. Start with this exciting book.*

—SB

Sexual Honesty
By Women For Women
Compiled and edited by Shere Hite
1974; 294 pp.
$1.50 postpaid

from:
Warner Paperback Library
Trade Sales Division
Independent News Company
75 Rockefeller Plaza
New York, NY 10019
or Whole Earth Truck Store



6. When I masturbate I never have any trouble coming but I did have to learn to masturbate. It's worth noting that I was 29 when I started—— I had tried once before but hadn't been successful. I didn't know what the clitoris was for! Sex education for girls should include masturbation along with all the other "facts of life"! During intercourse I have to be in the mood, not uptight, then I can usually come.

7. That just depends on so many factors. Sometimes I would like to go on after my man has come. Occasionally I'll masturbate but usually I repress it until the next day when I can masturbate alone. I still feel somewhat selfconscious when he's there, although I feel I should overcome that. During masturbation I guess I come about a dozen times.

•

40. I would like to try having sex outside in a setting like the warm, luxuriant garden I mentioned before, and I would like to spend a whole day with my husband having prolonged and repeated sex. I would like to have sex more often than we do now, and I would like the part before intercourse to last longer. I would like to change our bedroom scene so that my husband would treat sex in a less routine way.

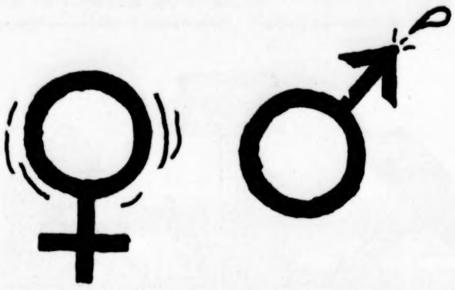
•

41. My first lesbian experience was incredibly electrifying—— and a brief affair I had later with a woman who was an unbelievably tender and romantic lover. Also Susan!

42. With myself—— I was 18 or 19 (clitoral stimulation). With a man, age 16, close body contact. My first orgasm, age 26, during heterosexual intercourse. With a woman, mutual masturbation, age 28.

I guess I looked at my vagina and genitals as carefully as I could at about 26 or 27. (I went to Catholic schools and was raised in the 50's—— the Great American Repression.)

•



The price at bookstores is $1.50, but if you cannot afford this, please write me for a copy. Bulk orders are available to women's groups at a 50% discount.

My hope is that these books will serve as forums for sharing our information and feelings, and for gradually building up an honest, collective and woman-defined picture of female sexuality and culture.

Shere Hite
c/o NOW New York
47 East 19 St.
New York, NY
10003

Sex Questionnaire

Sexual Honesty has been out for about a month now, and it's the first real book of this sort I've seen, being sexual anthro/sox. The author, Sheri Hite, is doing an expanded, more comprehensive version of the book for a Knopf editor/ the bk. probably won't be out for another yr. or so, since she's just begun collecting material. Anyway, the editor, Regina Ryan, & I got to talking & she showed me the questionnaires that Shere's using, including a new one for men, & I thought you might be interested in running one or the other in the quarterly, which you'd be free to do. Also, there's an ancillary access trip here, to which I didn't get the details, but essentially: NOW has a printing press in NY which women can use for free—— you cd. get more info from Shere, (also, I mentioned to Regina something abt. the Sex Info project that Point funded, & she thought Shere'd be interested, so maybe a connection (ha!) shd. be made.

—Bill Barich
San Francisco

Good idea. Here are the two questionnaires. You may send your answers to Shere Hite at the NOW address, above.

Aphrodesia: swap answers with a friend. (Retain a secret or two.) CoEvolve.

—SB

QUESTIONNAIRE ON FEMALE SEXUALITY

This questionnaire is part of a series of questionnaires for women which have been widely distributed over the past year and a half. Their purpose is to discover how we view our own sexuality, both individually and collectively. It is time we defined our own sexuality for ourselves, instead of letting others define it for us, and time to share our knowledge with each other. Who else can know how we feel, or what we need and want? Perhaps together we can create a realistic picture of how we see our sexuality.

Sexual Honesty

BY SHERE HITE

The earliest results will be published as a paperback book in April of 1974, and the complete results about a year later. About 2,000 answers have been received so far.

Please don't have the slightest worry about anything you want to say, because the questionnaire is completely anonymous and you need not sign it. If any questions do not apply to you or do not interest you, just go on to the next one–– it is not necessary to answer every single question. If you have already answered one somewhere else, just indicate where. Please use a separate sheet of paper and number your answers accordingly. Please send your answers to Shere Hite, Feminist Sexuality Project, c/o the above address. Thank you so much for answering.

I.

1. Is having sex important to you? What part does it play in your life, and what does it mean to you?

2. Do you have orgasms? If not, what do you think would contribute to your having them?

3. Is having orgasms important to you? Would you enjoy sex just as much without having them? Does having good sex have anything to do with having orgasms?

4. In most of your sexual encounters, does your orgasm(s) usually occur during manual clitoral stimulation, cunnilingus, intercourse, or other activity? Do you orgasm during masturbation?

5. Could you describe what an orgasm feels like to you–– during the build-up? just before orgasm? during the climax? after?

6. Are you more aroused before or after orgasm? Would you use the word "satisfied" to describe your feeling after orgasm? What word would you use?

7. Is one orgasm sexually satisfying to you? If not, how many? Do successive orgasms become stronger or weaker? How many orgasms are you capable of, and how many do you usually want, during the following activities: a) intercourse, b) clitoral stimulation (manual) with a partner, c) cunnilingus, and d) masturbation?

8. How long does it usually take to achieve orgasm during the above activities?

9. If you are just about to have an orgasm and then don't because of withdrawl of stimulation or some similar reason, do you feel frustrated? When does this tend to happen?

10. What bodily "symptoms" do you show during orgasm? For example, is your body tense or rigid, or are you moving? Are your legs tensed, straight out, or moving? What is your facial expression?

11. Is an orgasm something that "happens to" your body, or is it something you create yourself in your own body?

II.

12. What do you think is the importance of masturbation? Did you ever see anyone else masturbating? How did they look? Can you imagine women you admire masturbating?

13. Do you enjoy masturbating? Physically? Psychologically? How often? Does it lead to orgasm always, usually, sometimes, rarely or never? How long does it take? Do you prefer masturbating or clitoral stimulation with a partner? How many orgasms do you usually have?

14. How do you masturbate? Please give a detailed description. For example, do you touch yourself with your hand, and move your hand on your body, or do you move your whole body, rubbing against your hand or the bed, etc.? Exactly where do you touch or rub yourself: do you touch the clitoris itself directly, perhaps holding the labia apart for better contact, or do you try to "muffle" the stimulation in some way, touching the clitoral area in general rather than directly? Does it matter if your legs are together or apart, or do they alternate? If you ever insert your finger(s) into your vagina, do you do this simultaneously with clitoral stimulation, or alternating with clitoral stimulation, or exclusively penetrate your vagina, or do it only at orgasm? Do you move your finger(s) or some other object in and out, or hold still, and how deep do you go?

15. Do you practice clitoral stimulation with your partner(s)? How? Does it lead to orgasm always, usually, sometimes, rarely or never?

16. Do you enjoy cunnilingus (oral sex)? Is it oral/clitoral or oral/vaginal or both? Does it lead to orgasm always, usually, sometimes, rarely or never? What do you like/dislike about it?

17. Do you like vaginal penetration/intercourse? Physically? Psychologically? Does it lead to orgasm always, usually, sometimes, rarely or never? Did you have to learn how to have orgasms during intercourse, or did it just come "naturally"?

18. If you orgasm during intercourse, what would you say is your method of obtaining clitoral stimulation at that time: a) long foreplay (how long?), b) simultaneous manual stimulation, c) indirect stimulation from thrusting, or d) don't seem to need it?

19. Which kinds of movements do you like to make during penetration to increase your stimulation–– soft or hard, pressing to the front or back, using complete or partial penetration, thrusting in and out or holding still with the penis in while moving around yourself, or etc.? Which positions do you find stimulating? Do you use vaginal or other muscles to help achieve orgasm? Fantasies?

20. Do you ever have any physical discomfort during intercourse? Do you usually have adequate lubrication? Do you sometimes feel less excited the longer intercourse continues?

21. Is the emotional and psychological relationship more important during penetration than during other forms of sex? What is your emotional reaction to penetration?

22. Is it easier for you to have an orgasm by clitoral stimulation when intercourse is not in progress? If you had to choose between intercourse and clitoral stimulation by your partner, which would you pick? Why? Do orgasms with penetration feel different from orgasms without? How?

23. What forms of non-genital sex are important to you (for example, kissing)? Do you enjoy these activities as much as genital sex?

III.

24. Do you fantasize during sex? If so, is it to help bring on an orgasm, or just in general? Exactly what fantasies do you have? What activities are involved? Do you fantasize during masturbation?

Box 428, Sausalito, California 94965

25. Does erotic art or pornography stimulate you? Which kinds, with what activities? Would you prefer some other kind of erotica than you have seen?

26. Do you ever have a feeling of power during sex? When? How does it feel? Is it exciting, or frightening, or what? What are your feelings towards your partner and yourself at such times? Do you ever want to attack or hurt or rape your partner?

27. Do you ever have a feeling of powerlessness or submission, or wanting to be "taken" during sex? When? How did it feel, do you enjoy it, and what were your feelings at this time?

28. Do you, or would you, like/accept extended periods of monogamy (over a year, say)? Why or why not? Do you like casual sexual relationships? If you have been in a monogamous relationship for a long period of time (more than three years), did your desire for your husband or lover increase or decrease?

29. Do you often feel your partner is not emotionally involved during sex? Or, what emotional responses do you most often feel from your partner?

30. What type of person usually attracts you? Are there certain physical or personality traits you often find attractive?

31. What have your deepest relationships been like, with both men and women? How were they satisfying or unsatisfying, both emotionally and physically?

32. Ideally, what kind of relationship would you like to have with a sexual partner?

33. If you have ever experienced something you called "love," which emotions were involved? Was it, or were they, healthy or unhealthy relationships? How did these relationships affect sex?

IV.

34. How do you feel about fellatio (oral stimulation of the penis)? To orgasm? "Performing" cunnilingus?

35. What is it about sex that gives you the greatest pleasure? Displeasure?

36. Are most of your partners sensitive to the stimulation you want? If not, do you ask for it or act yourself to get it? Is this embarassing?

37. Do you ever find it necessary to masturbate to achieve orgasm after "making love"?

38. Have you ever been afraid to say "no" to someone for fear of "turning them off"? If so, how did you feel during sex? Afterwards? Would you define this as rape?

39. Do you ever fake orgasms? During which sexual activities? How often? Under what conditions?

40. Do you think your vagina and genital area are ugly or beautiful? What other parts of your body do you like or dislike? Are you comfortable naked with another person? Do you worry about how your body looks?

41. What would you like to try that you never have? What would you like to do more often?

42. Describe how most men and women have had sex with you.

43. How have these experiences influenced your current thinking or sexual behavior? Did you have any one experience which drastically affected your sexual life?

44. How old were you when you had your first sexual experiences, and what were they? (with yourself, and with another person) How old were you when you had your first orgasm, and during what activity? At what age did you first look at your vagina and genitals carefully?

45. What is your age and background—— occupation, education, upbringing, race, and do you usually live alone or with someone you have sex with? Where did you obtain this questionnaire?

46. Do you usually prefer sex with men, women, either, yourself, or not at all? Why? Which have you had experience with and how much? Was it mostly long or short-term relationships?

47. What do you think of the "sexual revolution"?

48. Do you feel that sex is in any way political?

49. What is the purpose of sex in your view?

50. How separate is your sexual life from the rest of your life? Would you consider expressing your feelings of love in a physical or sexual way with people you work with? with children? with animals? Why or why not?

51. Is there a difference between your earliest remembered sexuality/sensuality and now? What is it? Have your sexual patterns changed significantly over time? How?

52. In the best of all possible worlds, what would sexuality be like?

53. Have you read Masters and Johnson's recent studies on sexuality? Mary Jane Sherfey's? Others'? What did you think of them? What did you think of the literature on sex that you have read?

54. Please add anything you would like to say that was not mentioned.

55. Why did you answer this questionnaire (thank you) and how did you like it?

QUESTIONNAIRE ON MALE SEXUALITY

This questionnaire for men is part of a series of questionnaires for women on female sexuality which have been widely distributed for the past year and a half. Their purpose was to discover how female sexuality is viewed by women themselves, from both an individual and a collective point of view. This questionnaire has been designed as an adjunct to the original project, with the specific purpose of testing the validity of certain long-accepted assumptions about male sexuality.

Your cooperation in this effort would be greatly appreciated, and, even though it may be time-consuming, answering it might be of great benefit to you in understanding your own sexuality. Please use a separate sheet of paper and number your answers accordingly. It isn't necessary to answer every single question, and of course you need not sign your name. Please send your answers to Shere Hite, Feminist Sexuality Project, at the above address.

I.

1. Is having sex important to you? What part does it play in your life, and what does it mean to you?

2. Is having orgasms important to you? Would you enjoy sex just as much without having them? Does having good sex have anything to do with having orgasms?

3. Have you ever had trouble having orgasms? If so, when? Have you ever had difficulty achieving erection at a time when you desired it? If so, when did this happen, does it happen often, why do you think it occurs, how do you feel about it, and what do you do at such times?

4. Could you describe what an orgasm feels like to you —— during the build-up? just before orgasm? during the climax? after?

5. Exactly where do you feel the sensation of orgasm? That is, is it in your penis, or inside your body, or exactly where?

6. Can you have orgasm without ejaculation? Ejaculation without orgasm? Or does orgasm mean ejaculation?

7. Do you have more than one type of orgasm? Please describe the difference, if you do, and what do you think causes the difference.

Do you ever have something you would describe as an "emotional orgasm" or a "mental orgasm", as distinguished from a "regular" or "physical orgasm"? When? What does it feel like?

8. Can you have more than one orgasm during love-making? Do successive orgasms feel stronger or weaker, or different? How?

9. What does arousal feel like? Do you enjoy it as much as orgasm? Do you like feeling aroused for extended periods of time?

10. Do you feel an end to arousal after ejaculation? an end to excitement? Do you feel "satisfied"? How do you feel at this time?

11. How important are physical affection and touching for their own sakes (not leading to orgasm, or even necessarily to sex)? Would you like to do more or less of them?

12. Do you usually feel closer to or more distant from your partner after your orgasm? Do you often want further physical closeness, or do you usually prefer to return to other activities (not connected to sex)?

13. Do you enjoy masturbation? Physically? Psychologically? How often do you masturbate? Does it usually lead to orgasm? When doesn't it? How long does it take? Does it feel better than, or not as good as, orgasm during intercourse?

14. How do you masturbate? Please give a detailed description. For example, do you hold your penis with your hand, and move your hand on your penis, or do you move your whole body, rubbing against the bed or something else? Is stimulation important at the top or bottom of your penis? Do you touch yourself in other places besides your penis? Do you mind the wetness of ejaculation?

15. Do you enjoy cunnilingus (oral sex) with a woman? Physically? Psychologically? Why? What do you like or dislike about kissing a woman's genitals? Do you kiss her clitoris or vaginal opening, or both?

16. Do you like oral stimulation of your penis (fellatio)? Do you orgasm this way always, usually, sometimes, rarely or never? Does it feel better than, or not as good as, orgasm during intercourse? during masturbation?

17. Do you, or would you like to, "perform" fellatio on another man? Why or why not?

18. Do you like intercourse (penis in vagina)? Physically? Psychologically? Does it lead to orgasm always, usually, sometimes, rarely or never? Do you like it during the woman's period?

19. What does a vagina feel like to your penis? Do different vaginas feel different? Is the size, shape, or texture of the vagina important to you? Exactly how do you achieve orgasm during intercourse? What does the vagina feel like when the woman is orgasming?

20. During intercourse, do you like to be on top, on the bottom, sideways, or in some other position? What do you like or dislike about these positions? Which is your most usual? Do you like to do the moving, or have her do it, or both move simultaneously?

21. Do you ever have a fear of pain, or any discomfort, or of harm coming to your penis during intercourse?

22. How do you feel about making thrusting movements into the vagina? Are you thinking of the other person or of yourself at such times? Do you feel you are in a sense violating the other person, or that you are being sucked in, or that you are in unity/harmony with her, or what do you feel?

23. Is intercourse mostly appealing to you on a physical (feels good) or an emotional level (that is, the idea of being joined/unified with another being)? Please explain.

24. Do you ever orgasm "too soon" after penetration; in other words, you are not able to continue intercourse as long as you think you should or would like? How long are you talking about? When does this tend to happen, and why do you think it is? Does it bother you?

25. How long does intercourse (penis in vagina) usually last?

26. How do you feel about not having control over your penis, that is, as to when it becomes erect, or perhaps as to when you orgasm—— in the same sense that you have control over your hands and feet?

27. Do you have your best orgasms during fellatio, masturbation or intercourse, or other sexual activity? Which do you find overall the most enjoyable?

28. Are there any other activities which usually lead to orgasm?

29. What other activities, besides intercourse, does lovemaking usually consist of? How important are they to you? What is your favorite sexual activity? Why?

30. How important is what your partner does "to" you during non-intercourse sex? What other areas of your body are sensitive? Do you enjoy non-genital sex? How sensitive is your whole genital area (other than just your penis)? Is stimulation of your testicles (balls) important?

31. Do you like, or would you like, to be rectally penetrated? How did it feel, and do you orgasm this way?

32. Do you usually make the initial sexual advance (the initial physical contact)? Do you feel particularly good or bad about this? Do you often feel you must do most of the "work" in love-making, and do you dislike this, or do you prefer to "lead the dance"?

33. Do you often feel you should initiate sex, because it is expected? Intercourse?

34. Are there any patterns which your lovemaking seems to fall into? For example, do your sexual encounters usually consist of "foreplay" (petting, kissing, genital stroking, and perhaps oral sex), then penetration/intercourse, then your orgasm/ejaculation, and then relaxation? Please describe any patterns you may have, and how you feel about them.

35. Ideally, how long would you like "foreplay" to last? Do you sometimes feel obligated to "perform" longer "foreplay" than you would like? How do you feel about "foreplay" (the physical contact which usually precedes intercourse)?

36. What kind of "foreplay" is important to you for yourself? Are your breasts sensitive? Do you like to be touched? Kissed? Petted? Which activities are important to you, and why?

37. Does constantly holding off orgasming (while waiting for the other person to be ready, for example) inhibit your ability to orgasm, or make the orgasm all the stronger when it comes?

II.

38. Do you fantasize during sex? If so, is it to help bring on an orgasm, or just in general? Exactly what fantasies do you have?

39. Do you ever have a feeling of power during sex? When? How does it feel? Is it exciting, or frightening, or what? What are your feelings toward your partner and yourself at such times?

40. Do you ever have a feeling of powerlessness or submission, a wanting to be "taken" during sex? When? How does it feel, do you enjoy it, and what are your feelings at this time?

41. Is sado-masochism, or domination-submission, appealing to you? In what way?

42. What emotional responses do you most often feel from your partner(s) during lovemaking?

43. Do you like/accept extended periods of monogamy? Why or why not? Do you like casual sexual relationships? Why or why not?

44. Have your sexual patterns changed significantly over time? How?

45. What have your deepest relationships been like, with both women and men? How were they satisfying or unsatisfying, both emotionally and physically?

46. If you have ever experienced something you called "love", which emotions were involved? Was it, or were they, a healthy or unhealthy relationship? How did these relationships affect sex?

47. How separated is your sexual life from the rest of your life? For example, would you consider expressing your feelings of love in a physical or sexual way with people you work with? with other men? with children? with animals? Why or why not?

48. What is it about sex that gives you the greatest pleasure? Displeasure?

49. Do you sometimes feel pressured to have an orgasm, because it is expected, otherwise you will be a "failure"? When does this tend to happen, and how often?

50. Do you ever fake orgasms? When, and how do you do it?

51. Do you think your penis and genital area are ugly or beautiful? Do you worry about the size of your penis? What other parts of your body do you like or dislike? Are you comfortable naked with another person, or do you worry about how your body looks?

52. Do you think female genitals are ugly or beautiful? Smell good or bad? Taste?

53. Are you afraid of getting VD, or other disease? Do you feel it is important to wash your penis thoroughly after vaginal contact?

54. What would you like to try that you never have? What would you like to do more often?

III.

55. How old were you when you had your first sexual experiences? What were they? (both with yourself and with another person).

How old were you when you had your first orgasm? During what activity? What did you think of it at the time?

56. Did you have any one experience which drastically affected your sexual life?

57. Do you prefer sex with women, men, either, yourself, or not at all? Why?

58. Do you ever go for long periods without sex (over a month, for example)? Do you masturbate, or does this mean you have no sex whatsoever? How do you feel about these periods?

59. What is the purpose of sex in your view?

60. What is your age and background—— occupation, education, upbringing, race, and do you usually live alone or with someone you have sex with?

61. What kind of birth control do you prefer? Usually use? How do you feel about condoms (rubbers)?

62. What do you think of the "sexual revolution"? Has it affected your life, and in what way?

63. Do you feel that sex is in any way political?

64. In the best of all possible worlds, what would sexuality be like?

65. What books on sex have you read, and what did you think of them? Where did you learn most of what you know about sex?

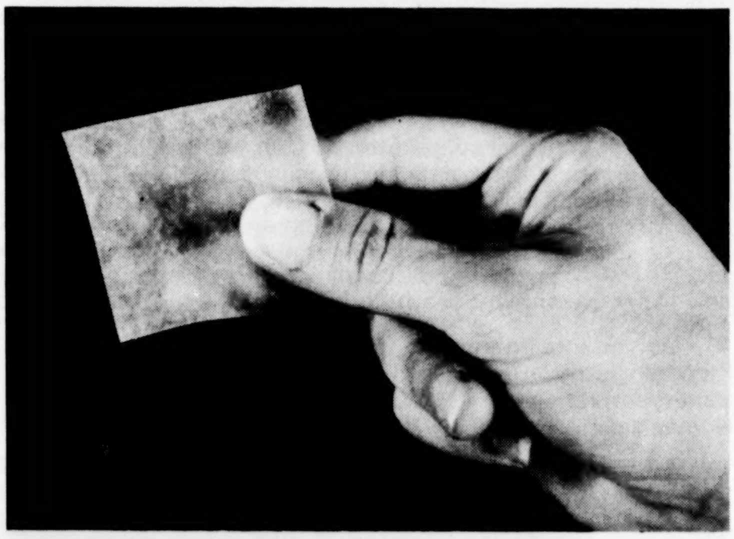
66. Please add anything you would like to say that was not mentioned.

67. Why did you answer this questionnaire (thank you), and what did you think of it?

C-Film

Contraceptive simplicity: slip this little item into the vagina or drape it on the penis-tip before intercourse and you get effectiveness equivalent to vaginal foam—— cheaper and easier. Now being introduced in England, originated in Hungary, C-Film is available nowhere in the U.S. Inquiries might be made to: Potter & Clark Ltd., Croydon, Surrey CR9 3LP, England.

[Sent by Stephanie Mills]



San Francisco Examiner

Hitchhike Transit System

Riders carry a sealed display card with their photo, identification, and space to write in destinations. They also carry valuable coupons.

Drivers have similar driver cards attached to their sun visor. They get redeemable coupons in exchange for riders.

Drivers or riders who misuse the system are dropped. System insurance might also cover participants. Proponent Ken Schmier says a county with $25,000 could initiate the system in two months. The college community in Ft. Collins, Colorado has something similar.

—SB

Libertarian Wit

(About time.)

The poster costs $1.25 from Libertarian Information Service, Box 31638, Aurora CO 80011.

**A welfare state
is what happens
when you let
a government
of the people
and for the people
buy the people.**

NEW GAMES
TOURNAMENT

All during the planning of this event last Fall I kept overhearing the whispered question, "What is he up to?", referring to me and my motives. I don't remember precisely. It had something to do with stopping war.

Motives are seldom worth noticing anyway, but results sometimes are. Some 4,000 people had a good enough time at the first New Games Tournament to return this Spring ('74) to a second one organized by Pat Farrington. They brought their friends.

Pat Farrington, 38, co-organizer of the first tournament, carries the authority unique to tall men and large women who know what they're doing. A political and public event organizer for years, she's taken on New Games as a way of life, complete with non-profit foundation: New Games Foundation, Box 40547, San Francisco CA 94110; (415) 826-0322.

Hey, a wonderful way to pick teams I learned this week at Earlham College in Indiana: you go by birthday dates—odds versus evens. As one girl screamed in the midst of an Earthball game, "The Odds are against us!"

—SB

Photos by Ted Streshinsky

Gerbode Preserve, eight miles from downtown San Francisco, site of the New Games Tournament, was provided by the Nature Conservancy.

NEW GAMES TOURNAMENT

BY PAT FARRINGTON

New Games Tournament, a mustering of games, was an event conceived by Stewart Brand, editor of the Last Whole Earth Catalog. The Tournament was staged in the Marin headlands on two consecutive weekends in October, 1973. It brought together games inventors, educators, authors, children, a traveling commune, the military, a citizens band radio group, land acquisition and management personnel, social crusaders and people out to have fun.

New Games embody the philosophies of "soft war" and creative play. The Tournament provided a soft arena both for intense physical struggle and release of aggression. It also provided a forum for changing the rules and designing games to fit the participant's imagination and abilities. It allowed them to compete together or against their own limits rather than against each other.

New Games provided a grassy slope for gentler folk to construct and fly kites; and for others a creek to throw a ship's hawser over for a tug of war on a gigantic scale. It was people tumbling and laughing together in some games that used sporting equipment and some which required no equipment. New Games at some points let the individual triumph or there were no winners among fifty people in a sloppy watermelon eating contest. You could play a game of old fashioned checkers while waiting your turn at space race, computerized blips on a television screen; or listen to bluegrass music and play with a gaudy orange and white parachute filled with balloons.

All these activities shared one common spirit— Play Hard, Play Fair, Nobody Hurt. You could make up your own games and rules. Old games, usually highly competitive, were restructured around a framework of cooperation and playing together.

Children played New Games together with their parents and taught them new rules. Snake-In-The-Grass, a game started by a ten year old, soon had men and women rolling on the ground wiggling like snakes. Rules were changed on the spot. There was a free open feeling with no boundaries unless the participants decided they were necessary.

Players could drift from game to game and join a team or they could become a referee and start their own.

New Games was an event sponsored by POINT, a private, non profit foundation for the people of the bay area. POINT was set up to disburse the profits of the Last Whole Earth Catalog.

New Games offer a new direction and an alternative to traditional forms of sports and recreational use of leisure time. By the reexamination of the basic idea of competition New Games can involve families, groups, and individuals in a joyous recreation experience that creates a sense of community and personal expression.

STRUCTURING NEW GAMES EVENTS

It's important to schedule three or four key games at specific times to allow people to be there ready if they haven't been able to fit into the more free form games. Players should be able to select from individual, player to player, or team events. Games can be created around learning about the environment, building a sense of community thru cooperation or defining one's own personal limits. Games that the whole family can play together are a must! In celebrations of ethnic themes, or historical holidays, games can be tailored to express these themes. The Indian Bone Game and Ring— Spike Toss or the African Stone Game are examples. The ancient Scottish caber toss can be turned into the Rocket Launch. A Bicenntenial Celebration could utilize variations on games played by the pilgrims and space age computer games to express our two hundred years of being. Rocks, scissors, paper in French and Spanish, keeping score for a game in different languages, and soccer with a lopsided ball are more new games.

Co-Organizer Pat Farrington astride Maury Dans in a relay race called "Clench the Wench."

NEW GAMES ISN'T. . .

boys and girls basketball in January or girls and boys softball in April.

New Games is a game for everyone. Families can play together in the same game or each individual can select a different game. There are no seasons, no certain days and no permanent facilities.

two teams of eleven players each and twenty-two more on each bench.

No New Games player is on the second string. Everybody plays regardless of age, sex, size or ability.

games with definite inflexible rules

The best way to play New Games is to create your own rules and set your own goals in cooperation with other players.

a detail for litter control

Part of the games is learning respect for the environment and many new games can be structured for environmental awareness.

a group of individuals out to best or win.

New Games encourages a sense of being together. Monopoly has upset many a household with screams of outrage and tipped boards. Monster Monopoly lets all the participants play together against the monster with the addition of one die to the regulation game.

a boy crying because he struck out at a Little League game.

There is no pressure on New Games players. They can drift from game to game and not feel as if they have to stay or win.

a special set of golf clubs or expensive shoes.

There are no barriers– social or economic that separate any one group from positive recreation. New Games could be created in a vacant lot with no equipment.

fifty thousand spectators sitting in the stands

Every person attending New Games events can play. There is no distinction between player– spectator. Someone running onto a football field during a game can be arrested or at least chased off. New Games players can join in at any time and be part of the excitement.

GAMES EQUIPMENT

Players, given basic gaming equipment and the freedom to construct, redesign or invent games with the support of a good referee will create a spontaneous, joyful event that involves everyone. All types of equipment can work for New Games. A piece of canvas, a pile of straw, rope, balls, toys, boxes of junk, the makings for kites, water pistols, polaroid cameras and film, board games, and boffers are all for New Games. The volley ball court with a standard net can become four different games. Use of a beach ball or cooperation scoring can radically change the game to include a wider range of age, size or sex. Many New Games are played with no equipment. Animal Relays, Human Pyramids and Standoff require no equipment and could be played with hundreds of people at one time. A pile of articles can be thrown down with the game and rules made on the spot. The minimum amount of equipment required to stage a games event makes them highly portable.

Communication
First Aid
Water Supply
Sanitation
Food Service
Liability
Transportation
Spectacle & Pageantry

To create a games event on a large scale it is necessary to provide comfort and safety for all people attending. There should be instant communication from the field to hospital & law enforcement, fire protection and other emergency services. First aid facilities should be available on the field along with an adequate water supply and sanitation units.

A food service with a simple, wholesome menu could be provided if the games are held away from urban services or people could be reminded to bring lunches. Liability coverage for the games organizers should be carefully checked. In some cases additional insurance needs should be met.

Color, music and spectacle provide excitement and festivity. Banners, flags, balloons, acoustical music, clowns, mimes, theater games with makeup, inflatables provide the feeling of something special happening.

SITE SELECTION

An open piece of land with no broken glass or other hazards is best. You could make a game out of cleaning an area. Litter tag is lots of sacks and players filling them up to get home free. If you are playing in a park or recreation unit have the players walk the field looking for unexpected holes, sprinkler heads or areas posted for no playing. Tailor your games to the area. If you don't have room to throw a frisbee 100 yards, change the rules to make the game conform to the area. One New Games concept is flexibility and the idea of working with what you have. New Games doesn't have to have the grand, natural, wild, green, valley arena used for the New Games Tournament but could be adapted in scope and size to fit a variety of situations. New Games is a concept and could be adapted to gymnasium, store front church, a stage, a vacant lot, or a mini park.

GAMES PERSONNEL

Referees and security people will be the most essential ingredient in determining the free form, open-ended learning environment that New Games should be. They should be ready to encourage the participants to try out new ideas with no harm coming to the players as the only constraint. The use of bull horns proves effective in letting a large group know exactly what the new rules are, prior to the game. Security people are games players too. They should have information on where first aid facilities are, what parts of the environment needs to be protected and should deal with any problems quietly. Referees play a major role in crowd security too by creating a new game and energy center away from any disruption in the games flow.

NEW FRISBEE

BY GEORGE LEONARD

PRINCIPLES. New Frisbee is based on the principles of maximum performance, human potential and impeccable personal morality. There are in this game no officials and no lined areas— and there must be none. The two players involved enjoy numerous opportunities of defining the limits of their potential independently of artificial, objective standards, and of exercising their faculties of moral word and deed. These principles alone, as will be seen, mark it as radically different from sports as we know them. It is quite possible, in fact, that New Frisbee represents the first significant breakthrough in game theory since the time of the ancient Greeks.

CONDITIONS OF PLAY. New Frisbee is customarily played with the Master Tournament Model Frisbee manufactured by Wham-O Mfg. Co. However, any sailing disk of good aerodynamic characteristics may be used, if both players agree. The game is played on a frisbee green. A "green" is defined as an open area of level or gently sloping land with a surface yielding enough so that both players agree they are willing to dive, fall or roll on it. Typical greens are beaches or grassy areas. Ideally, the green should measure 50 x 50 yards or more. Smaller areas may be used with the obstacle rule described below. For match play, the wind velocity should not exceed 10 mph. Players line up cross-wind, standing between 15 and 20 yards apart. Players should resist the temptation of drifting farther apart. Distances over 20 yards slow the game.

In most cases, physical handicaps need not restrict play. A person with one leg can play on an equal basis with a champion sprinter, since the rules require that a person run only as far as he or she can run. Flaws in character, however, can cause immediate disqualification. Players are required to make an all-out attempt to catch the frisbee on every interchange, and to report with fastidious accuracy on any failure to do so. Ranking players can simply refuse match play with those who tend to cheat. In actual practice, however, such people are not attracted to this game, and New Frisbee remains extremely inclusive, a sport for people of all ages, sexes and states of physical condition.

SCORING. Before beginning play, both players declare with which hand they will throw and catch. They may throw and catch with different hands or with the same hand; they must, however, throw and catch with the declared hand throughout the game. (A player may throw right and catch left if he or she wishes.) Players take turns throwing and catching. The lower-ranking player makes the first throw.

Thrower launches the frisbee in any direction. Catcher makes an all-out attempt to reach it and catch it.

If catcher cannot possibly reach and touch the frisbee at any time during its flight, catcher takes one point. To establish all-out effort or maximum performance, catcher must follow a direct course towards the best possible position to catch the frisbee and, if close enough to reach it by diving, must dive.

If the frisbee comes within catcher's potential limits and yet catcher fails to reach and touch it— that is, if catcher fails to make an all-out effort, or misjudges the frisbee's flight— catcher gives one point to thrower.

If catcher touches the frisbee then drops it, catcher gives thrower two points. Catcher must give thrower two points if the frisbee touches any part of catcher's body then falls to the green, or if catcher catches the frisbee with the wrong hand, or if the frisbee is caught by cradling against the body or other arm.

If the frisbee should tilt more than 45 degrees from the horizontal at any time during its flight, catcher may call aloud, "Forty-five!" In this case, catcher takes one point. The call must be made while the frisbee is still in flight.

If the catcher makes a clean catch with the declared hand, no points are received by either player. Perfection is expected and thus not extrinsically rewarded.

Catcher calls all points. Upon hearing the call, thrower must make no outcry or gesture of disapproval.

A casual game consists of 11 points. Players change sides when one player reaches six points. The first player to reach 11 points wins. Results do not affect rankings.

A match game consists of 21 points. Players change sides when one player reaches 11 points. The first player to reach 21 points wins. Games of 21 points affect players' rankings. At least one knowledgeable observer must be present at match games. Observers are encouraged to applaud good plays and good calls. Though they cannot change catcher's calls, observers' signs of approval or disapproval may be helpful in catcher's efforts to evaluate his or her physical limits.

Obstacle rule. If catcher is in danger of running into a physical obstacle, catcher or thrower should call, "Obstacle!" loudly. The point is then replayed. If at this point there is another obstacle call, catcher takes one point.

Inventors. George B. Leonard, Lillie P. Leonard and Hugh Knowlton, Jr.

Historical sketch. As pilots in World War II, Leonard and Knowlton developed the concept of maximum performance, which may be expressed in this way: Even if you have a 10,000-foot funway, always land on the first 50 feet. Even if regulations allow you a leeway of 200 feet, plus or minus, fly the exact altitude at all times. In other words, try for the

George Leonard, working someone's edge in New Frisbee.

best possible performance, not from necessity or coercion, but simply for the sake of doing it.

In the spring of 1959, Knowlton, then an investment banker in New York City, visited George and Lillie Leonard in San Francisco. He brought three large frisbees and told the Leonards that he had developed a way of playing with them that exemplified maximum performance. It involved catching with one hand only and making an all-out effort, including diving, for the frisbee on every catch. Knowlton, however, had not developed a system for scoring. After Knowlton's departure, the Leonards experimented with the frisbees and began working out a scoring system. Over the next two years, they visited Knowlton on the east coast and he visited them on the west. Through the Leonard-Knowlton collaboration, the rules evolved from early complexity to their final simplicity.

By 1962 a group of west coast players was meeting regularly at a green near the east end of Golden Gate Park every Sunday at 11 A.M., rain or shine. The rules and traditions of the game have been passed on orally to hundreds, perhaps thousands, of people since 1962. The inventors have been reluctant, however, to present the rules in written form, fearing that the game might become rigidified or corrupted. The worst corruption they could imagine would be the imposition of officials.

The rules do appear, though in disguised and shortened form, in Leonard's **Education and Ecstasy** (pp. 169-170). But this is the first time they have been presented as such to a wider public. This presentation is made in the belief that the New Games movement provides an ideal ecology for preserving and strengthening the spirit and traditions developed in 14 years of New Frisbee play.

Shrieking, "Dho-dho-dho-dho-dho... " an invader struggles to return to his own side. The gent on the left in white gi and sinister shades is George Leonard.

YOGI TAG (OR DHO-DHO-DHO)

BY GEORGE LEONARD

Yogi Tag is played on a relatively flat area that can be divided into two equal parts by a center line. The surface should be soft enough to cushion a fall. Typical play areas are a gym mat, beach or grassy area. Any number can play, depending upon the size of the play area; the game is generally played by eight to 14 people.

Players divide themselves, half on each side of the center line, thus forming two ad hoc teams. The two teams take turns sending one player across the center line. A flip of a coin may decide which team first sends a player first.

Before crossing the line into opposing territory, the player takes a deep breath. From the moment he crosses the line, he must say aloud, "Dho-dho-dho," in a continuous flow, without taking a breath. If at any time in opposing territory he stops making this sound, he is out of the game. The player's purpose is to touch one or more players of the opposing team and return safely to his home territory, all in one breath. If the player can make it back across the line with any part of their body, even a fingertip, before running out of breath, all the people he or she touched must leave the game.

The opposing team members, however, attempt to catch the invading player and to hold him or her in their territory until he or she runs out of breath, in which case the invading player must leave the game, and those that the invading player may have touched can remain in the game.

As soon as one interaction is completed and all players who have been eliminated have left the play area, the other team may immediately send one of their players across the center line. Play continues alternately until all the players of one of the teams have been eliminated.

In capturing and detaining an invading player, team members must use no unnecessary force. No running tackles are allowed, and no one can be grasped below the waist. Anyone using unnecessary force must leave the game. Either a referee or the honor system may be used to enforce the rules.

HUNKER HAUSER

BY RON AARTS AND KATHY MEYER

EQUIPMENT:

A 20 foot rope
2 blocks, approximately 11" x 13" square, 8" high
Blocks are placed approximately 6 ft. apart.

OBJECT:

To pull the opponent off the block or let him fall over backwards.

RULES:

The game is started holding the bigger end of the rope in one hand, with the other hand raised with the palm facing opponent. The game commences when a third person drops a coiled rope between two players.

1. Each player must remain in a hunker-down position at all times.
2. Each player must Maintain possession of the rope at all times.
3. If a player touches the ground while the opponent is still on her block, she loses.

INFINITY BALL

BY BOB KRIEGEL AND KATHY MEYER

EQUIPMENT: Volley ball and net

OBJECT:

To keep the ball in the air as long as possible. Both teams must cooperate and work together in order to attain the highest possible score.

SCORING:

A point is scored each time the ball is hit. Points are added from both sides. Everyone must call out the score.

VOLLEY-VOLLEY BALL

This version of volley ball is played with two competing teams. The scoring differs. If team A passes the ball twice on its own side, then passes it to team B and team B misses, team A receives 2 points. (A team can secure no more than 3 points at a time.) Each team must cooperate within itself to score more points. The game ends when a team accumulates 35 points.

STAND-OFF

BY SCOTT BEACH

(INTERGALACTIC CHAMPION)

Scott Beach (right) and former boxer Nathan Hare (publisher of The Black Scholar*) in Stand-Off.*

Stand-off is better than aikido because you don't need a uniform and a mat to play it, and you only have to bow if you feel like it. It is important not to use Stand-off for physical defense. You'd look pretty silly trying to stop a mugger with Stand-off. It's also better than ice-hockey. You can play Stand-off in the middle of Death Valley. Try playing ice-hockey in the middle of Death Valley.

Here's how to play Stand-off: On a level surface, two players stand face-to-face at one arm's length. (If one player's arms are shorter/longer than the other's, split the difference.) The feet of each player must be side-by-side, smack together. The players present their hands with palms forward. The object of Stand-off is to cause your opponent to lose balance by contacting the hands only. If, by striking the hands, you cause him/her to move either or both feet while you retain your stance, you gain one point. Also, if your opponent lunges forward and ends up leaning on you or wrapped around you in an impromptu abrazzo, that's a point for you. If both players lose balance, it is a draw and no point is scored.

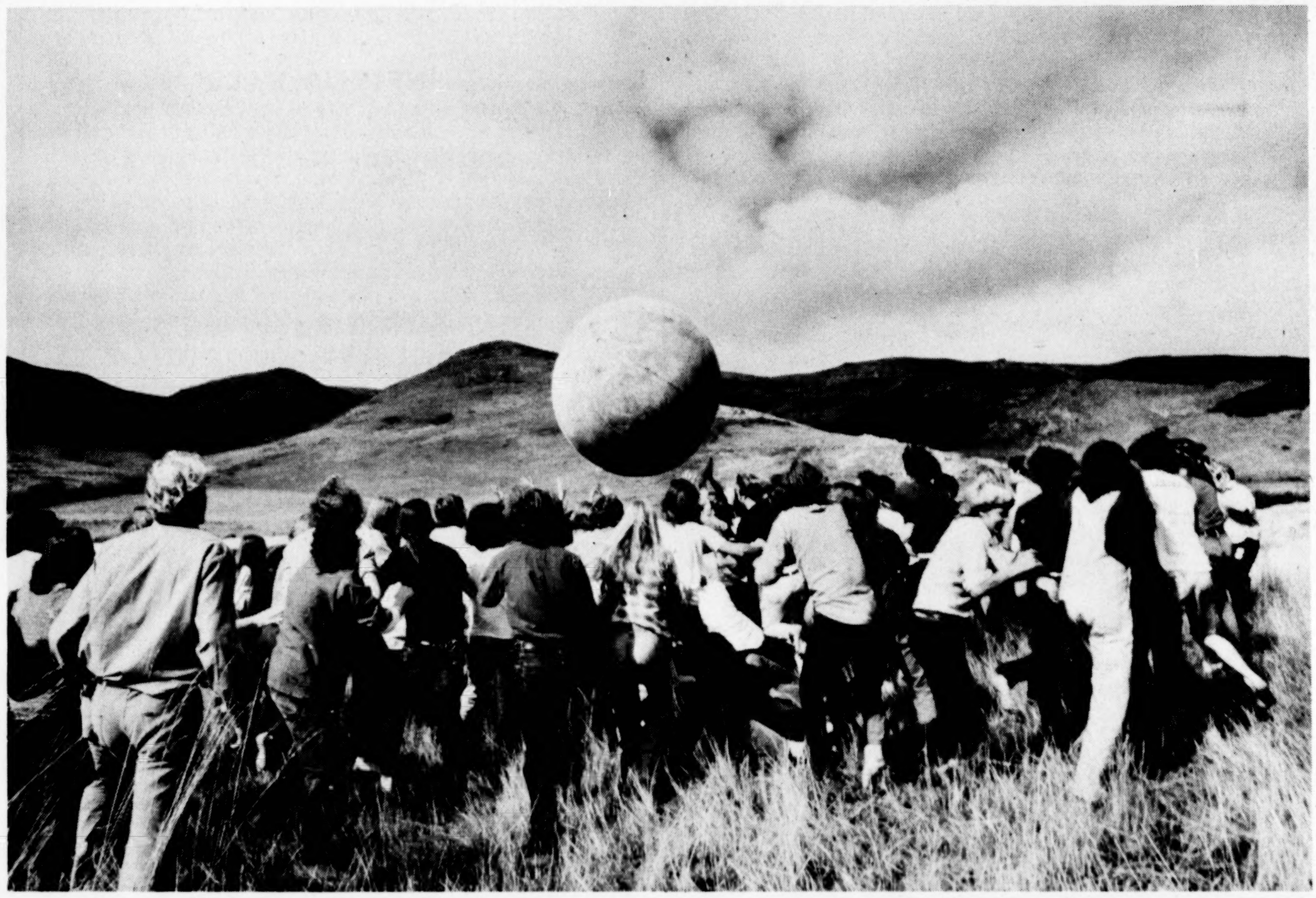
Note: At no time during the game may players make contact with other parts of the opposing body than the hands. If such forbidden contact is made, no penalties are imposed, but the offending player should reflect upon what's really going on.

A game of Stand-off is won by the player who scores two out of three points.

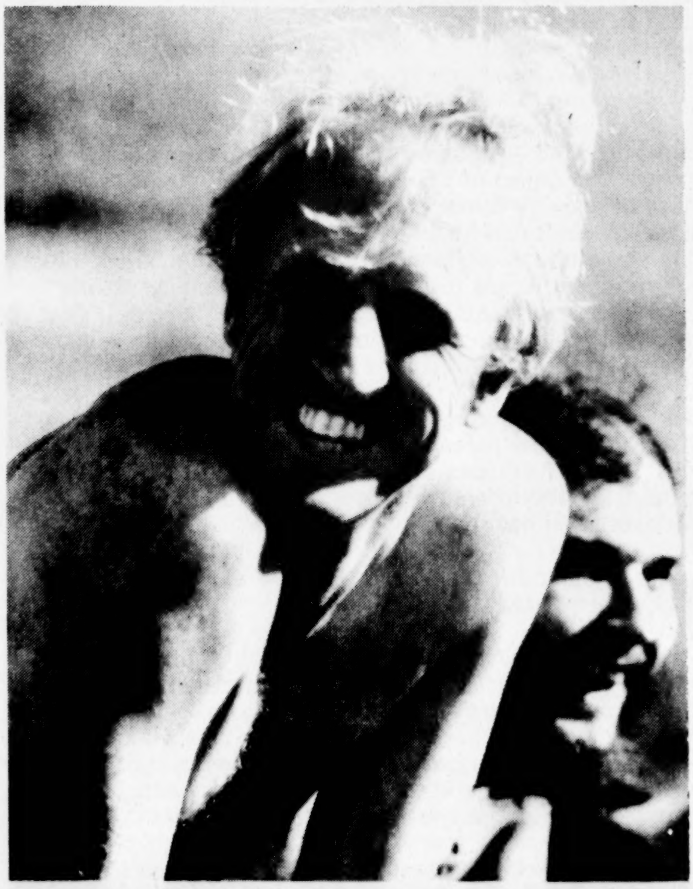
Note: No fair playing Stand-off with a wall or a tree behind your back... and no fair sneaking in a confederate to stand behind you and prop you up.

Note: The winner of a game of Stand-off may beat his/her arms on his/her chest and roar like a gorilla. (optional) It is permissible to dodge and feint with your hands.

Note: A long session of Stand-off can get your arms sore and leaden. Remember, you can always stop playing. Who needs sore and leaden arms?



An Earthball is a six-foot canvas pushball painted with spray cans to resemble Earth. People can't leave it alone—— they bounce on it, perch on it, fight mob battles over it, endlessly invent new games around it. A plain ball, ready for painting, may be ordered for $200 from the New Games Foundation.



Co-Organizer Brand and Chief Cook Rocky Roberts.

PLAY HARD.
PLAY FAIR.
Nobody hurt.

FILM

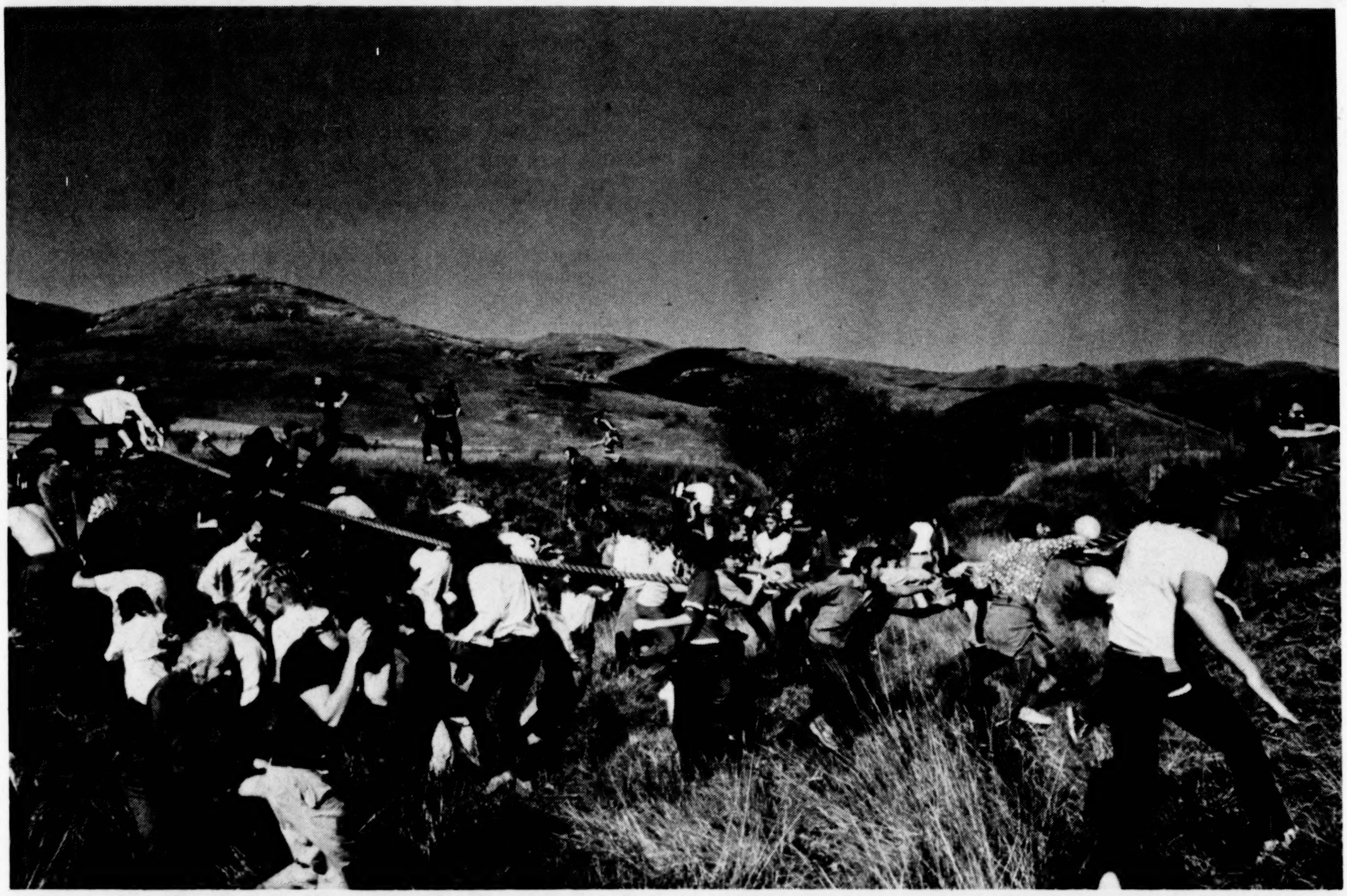
"The New Games Tournament" a film by Tom Schneider, 16 mm, 25 min., color, sound, may be rented for $25 from POINT, Box 99554, San Francisco, CA 94109.

These are interesting games that worked well for us, but they're not the point. The point is local originals and variations... such as the variant of Earthball that the students at Earlham college came up with: folks lie on their backs, feet in the air, and try to kick the Earthball over the ring of standing folks surrounding them, who try to keep the ball back on the kickers without it touching the ground.

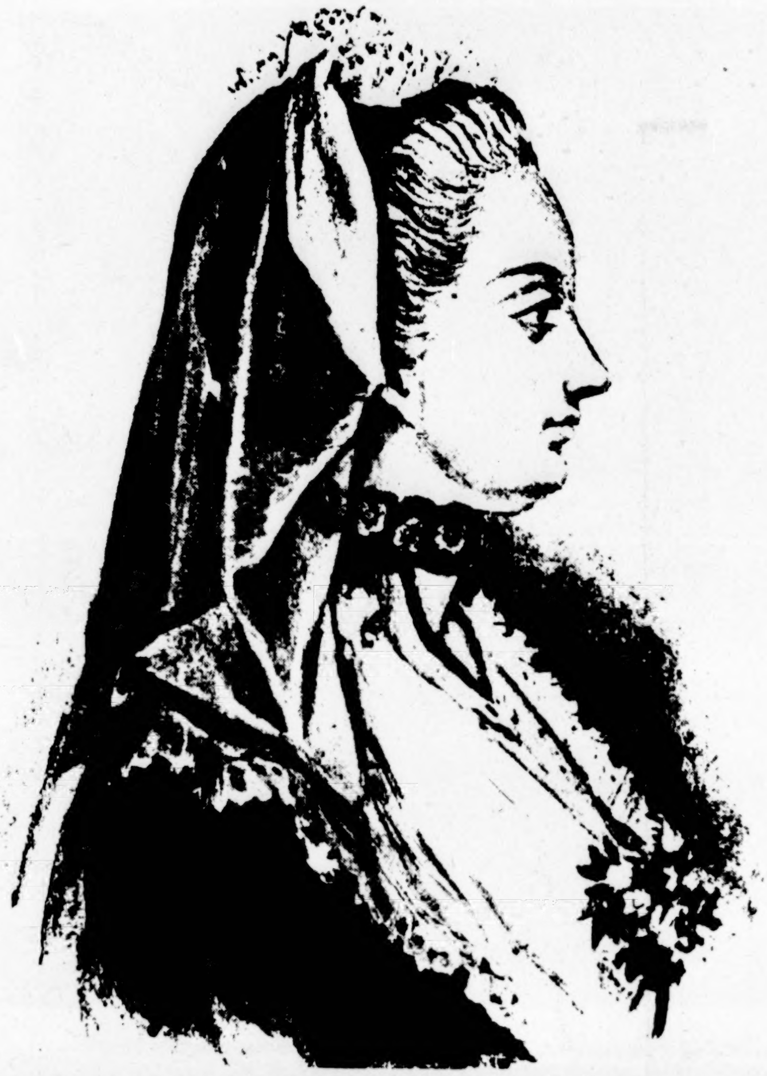
Now I remember why we did the New Games Tournament. We saw it as a meta-game arena, where the game of gaming goes on, where people may enjoy becoming accustomed to changing the rules they play by. (A skill in high demand in parlous times.)

New Games Tournaments are pretty easy to organize.

—SB



The Le Mans (running start) part of Le Mans Tug-O-War. We began with people merely standing 15 feet back from the rope and progressed to having the teams run through each other across the creek at the sound of the starting gun.



Mademoiselle Julie de Lespinasse, 1760

Salons and their keepers

BY **STEPHANIE MILLS**

The most powerful instrument of intellectual community organizing is the salon. I'm convinced of this after seeing the effects of two small grants from POINT to Stephanie Mills for the purpose of giving dinners.

When talk is intended to be good instead of merely efficient, meta-business gets transacted. Something gels. The abbot of the San Francisco Zen Center says that culture is what happens when a number of people know each other well. Maybe that's what gels.

A hostess with wit, culinary skill, and access to people who ought to know each other is all it takes.

–SB

Salon: The reception room of a Parisian lady of fashion; hence a reunion of notabilities at the house of such a lady; also a similar gathering in other capitals.
(Shorter Oxford English Dictionary)

Salons are spaces, psychic spaces created to draw the best talk from a gathering of minds. Since the Renaissance, they have been ostensibly agendaless gatherings for the sake of conversation. At the time of their French flourishing, people were not so disillusioned with words as we. Conversation had the status of an art. Salons were its galleries.

. . .words are not merely. . . a means to communicate ideas, feelings and needs but an instrument one likes to play and which revives the spirit. . . A certain way in which people act on one another, a quick give and take of pleasure, a way of speaking as soon as one thinks, of rejoicing in oneself in the immediate present, of being applauded without making an effort, of displaying one's intelligence by every nuance of intonation, gesture, and look––in short, the ability to produce at will a kind of electricity. Quoth Madame de Staël, history's most famous salonière.

Salons still exist, but the conversational aesthetic has vanished. Cocktail parties are not salons. The talk that takes place at cocktail parties with its discontinuities and roving eyes cannot be called proper conversation. Talk shows might pass as a species of salon if they were less self conscious and plug-oriented, but the quality of intelligence on talk shows is diluted. While it abounds in sharpness, it often lacks the creative direction of good salon conversation. Talk shows are promiscuous. Salons are organisms, collectivities which require friendship and intimacy to function.

Attendance at the great salons of 18th and 19th century Paris was habitual. Different salonieres (most of whom were women,) received on different evenings to avoid conflicts with their friends' gatherings. Much of the brilliance and constancy of the salons derived from the presence of core groups of friends––the planets––who attended faithfully and warmed the parties with friendship. Brio and excitement were provided by rising and falling stars shooting through.

During the eras of Enlightenment and Revolution, Paris' atmosphere was charged with the ideas of progress and reform, political debate, then intrigues––to depose the monarchy, to save the republic, then to resist Napoleon's dictatorship. These philosophies and strategies were aired and developed in the salons; there cells of opinion throve and the French Revolution was accomplished. The vehicle was not polemic, but conversation.

Julie de Lespinasse and Germaine Necker de Staël each presided over the most luminous and eagerly attended salon of her generation. Julie died in the springtime of 1776, when Germaine was just ten. Their lives overlapped––many of the members of Julie's salon also attended Mme. Necker's Fridays. Thus Germaine grew up surrounded by Julie's contemporaries. And the two women were linked by a lover––Hippolyte de Guibert, who may have been Madame de Staël's first, and was Julie's last.

Julie de Lespinasse was the illegitimate child of the Comtesse d'Albon. Therefore she was propertyless. Her loving mother did attempt to provide her an inheritance, but when her mother died, Julie, in an excess of grief, turned the money over to her brother. Penniless, she wound up serving her sister Diane and brother-in-law Gaspard de Vichy as a governess for four years, the last two of which were made rancorous by the discovery that Gaspard was likely her father.

Gifted with kindness, intelligence and tact, made miserable by her domestic situation, and unstimulated in the remote chateau, she was ready to be rescued. At which point, Gaspard's sister, the Marquise du Deffand appeared at Champrond for a visit. Here was a witty, civilized woman, keeper of a notable Parisian salon, sadly going blind. She perceived in Julie a potentially charming companion, and began to consider bringing her to Paris.

After about a year of negotiations with the de Vichys, who feared that Julie might try to claim some of her mother's inheritance, Julie took up residence with Madame du Deffand in the convent of St. Joseph. (At that time French convents provided a refuge for single women of reduced means and were not very cloistered. The residents could maintain apartments and their particular lives within their hospitable shelter.) In her correspondence regarding the move, the Marquise had written a prophetic word of warning: "I am naturally distrustful, and all those in whom I detect slyness become suspicious to me to the point of no longer feeling the slightest confidence in them."

At 22, then, Julie de Lespinasse became part of Madame du Deffand's distinguished company of intellectuals with a grace and ease that amazed them all. She was outwardly plain, but possessed, Grimm said, "The difficult and precious art of drawing out the best intelligence of others." Her relationship with the Marquise lasted ten years, until it was severed by a terrible schism.

Julie had begun to hold a small salon of her own an hour or so before the Marquise's six P.M. arrival. When she descended early and discovered Julie skimming the cream of the conversation, she exploded in a fit of jealousy and drove the usurper out. Furthermore, she insisted that her friends declare their loyalty either to her or to Julie. Many of the regulars, including D'Alembert, went with Julie, and set about arranging for her to have a salon of her own. Such independence, for a woman of her means and status, was unheard of at the time. The novelty of their idea is testimony to Julie's genius as a salonière.

Mademoiselle Mills, 1974

Various friends provided the money to rent a small house, furnish it, and pay servants. Among the most generous of these was Madame Geoffrin, another salonière, who sold her most valuable paintings to provide Julie an annuity.

While most Parisian salons offered lavish dinners and feasts, Julie's on the Rue Bellechasse was modest to the point of spartanism. She was the enticement. In one of many panegyrics on her skill as a hostess Marmontel said, *She gathered her people here and there in society, but she chose them so well that when they assembled it was like an experienced hand striking the chords of an instrument. To continue the simile, I might add that she played on that instrument with an art that knew no bounds.* Her gatherings verified the nickname bestowed on her by Madame du Deffand––"Muse of the Encyclopedia."

While reigning as one of Paris' luminaries she was racked by two hopeless love affairs. To one of her lovers she wrote, *"Mon ami, society offers me now but two interests: I must love, or I must be enlightened."* The futility of her loves made a personal hell undetected by her friends. D'Alembert, who lived with her for years, was shocked by the revelation of them some years after her death.

Julie's first great love was with a gifted young Spanish noble, the Marquis de Mora, who struggled for years to obtain parental consent to marry her. He struggled also with consumption and was away from Paris for long stretches of time. She began to console herself in his absence with the friendship of Guibert, and began the passionate, chiding correspondence, which survives as a complex lament of a soul tormented by remorse and unrequited love. As the affair with Guibert ripened, Mora's health waned, and he died en route to see her. Julie blamed herself for Mora's death, and perhaps masochistically threw herself into the pursuit of Guibert.

"My thought, my soul can henceforth be filled by you alone, and by my harrowing regrets." But Guibert had made no secret of his liasons with other women, and married someone else. Julie died twelve months later, her health slowly wasted by a cough, her anxieties, and her increasing use of opium. What was amazing, wrote her friend Morrelet, was that "You would still find her interesting and animated in the midst of her daily increasing weakness."

Germaine de Staël had almost been hybridized to keep a salon. Jacques Necker, her father, was Louis XVI's Controller General. One of the richest and most powerful men in Europe, he briefly held France's fate in his hands. Suzanne Curchod Necker, her mother, maintained a famous salon in Paris. Strict, ambitious and intense, she provided Germaine with an arduous education. As a little girl, Germaine attended salons peopled by the likes of Diderot, D'Alembert, Gibbon, Marmontel, and Grimm. They challenged her wits——she responded with poise, and developed into the most brilliant conversationalist of her time. After her marriage in 1786, she began her own salon, which became a powerful influence on French politics thereafter.

When Napoleon's star began to rise, she sought to include him in her gatherings, but Madame de Staël drove him up a wall; he couldn't abide uppity women. Viz this exchange between them at a dinner given by Talleyrand:

> De Staël: "Who is the greatest woman, alive or dead?
> Bonaparte: "The one who has made the most children."

She had difficulty comprehending his aversion to her. Her excellent biographer, J. Christopher Herold, suggests an explanation in **Mistress to an Age**: "The most prominent of her guests were drawn not from among the enemies of his regime but from its elite. . . In Madame de Staël's house the schoolboys were encouraged to be disrespectful of their master; they unlearned the fear on which his power rested."

De Staël threatened him further with her writing. Her opus consists of more than thirty works; novels, essays, elegies, treatises, and dramas. De Staël, "The Empress of Mind," was so influential that Napoleon, "The Emperor of Matter," exiled her after the publication of **Delphine** and later suppressed the publication of **De l'Allemagne.**

Her base during her periods of exile was in Switzerland at Coppet, her father's chateau. There she surrounded herself with her friends and lovers. The salon went on. Her life and the lives of her contemporaries were awash in words. Wherever she went, she carried a little green escritoire and wrote. The intelligentsia kept lengthy diaries, corresponded voluminously, and published their thoughts. De Staël's guests at Coppet played a parlor game called *petite poste* in which they sat around a table, and not speaking carried on conversations and flirtations by passing little notes.

When not thus occupied or conversing, they wrote, acted in or watched theatrical productions; or wrote letters to their friends down the hall. Charles-Victor de Bonstetten, one of the faithfuls wrote, "I just returned from Coppet, and I feel completely stupefied. . . and exhausted by the intellectual debauches. More wit is expended at Coppet in a single day than in many a country during a whole year."

Madame de Staël passed much of her exile in travel, being received by nobility and sages throughout Europe. It was said that there were three great powers in Europe: England, Russia, and Madame de Staël. She was instrumental in bringing about Napoleon's downfall, compassionate enough to warn him of a subsequent plot on his life. She had the temerity to demand absolute loyalty from her lovers, and practice a double standard ("I do not like my friends to get married."). She was funky enough to have lost the train of her gown during her presentation at the court of Louis XVI.

Socializing in those days was continuous——there was no distinction drawn between it and business. Human relationships were the matrix of a thriving life of the mind. Power was wielded more personally. Madame de Staël never held an office——she didn't need to. Influence was enough. There was a whole lot of nepotism going on, and it wasn't always a bad thing.

Though it is bad taste to condone nepotism in a democratic society, it is one of the ways things work. Members of an elite make their way along the grapevine finding jobs and home, meeting friends and getting breaks by word of mouth. Nepotism isn't always reliable or fair, but it is human. The mechanistic devices that the free enterprise system uses to place people aren't always reliable or fair either, and they can be dehumanizing. Perhaps instead of condemning nepotism (the soft unacknowledged system) for the putative one, nepotism could be made more useful and elites diversified.

Thanks to nepotism, I received a foundation grant to keep a salon. A "Cookenheim," Nick von Hoffman dubbed it. The foundation director who supported it most actively had known me for years. Another director who chipped in is a lover of mine. Like Julie de Lespinasse, I was subsidized by my friends to keep a salon. Funding a grasshopper-pauper writer like me to throw dinner parties catapulted that kind of entertaining out of the realm of the well-connected wealthy.

It started offhandedly. I'd been an environmental activist for a while, travelling, speechifying, making acquaintances. Eventually I got out of that and began to write.

Meanwhile, the U.N. was planning its Conference on the Human Environment in Stockholm. Hopes were that it might be a great occasion of world environmental consciousness raising. A number of California's finest ecofreaks began making plans not just to attend, but to launch a veritable flotilla of counter-culturalists. Life Forum was the umbrella organization which transported some poets (Gary Snyder and Michael McClure); the Hog Farm complete with two busses; an estimable writer (Mary Jean Haley, who produced a guide book to the city and conference); Native American and white members of the Black Mesa Defense Fund; and its own staff to the gallery and apartments at Pilgatan 11 in Stockholm.

Many of this company were friends and sought to involve me, suggesting that I do my population schtick. But all I wanted to do was give dinner parties. Almost within minutes funding was available for me to join the gang, and set up the salon.

I wandered around Stockholm with my transit map and phrasebook, breaking up grocers wherever I went with my futile attempts at Swedish. We had some fine parties there.

One of the best was the Whale Salon. It starred Joan MacIntyre, head of Project Jonah, who has made saving whales her life——she came to Stockholm and reminded everybody that it was living creatures being discussed; Willy Wiloya, an Inuit, who hunts whales for a living; Lee Talbot, a Whitehouse advisor on wildlife conservation; a British cetologist; a Canadian marine biologist who made passionate entreaties that we not overlook the plight of

BJORN: It sure ban a nice day. *[Puts tongue in mouth and stares at sun for a pause and then blows out tongue and hiss-wistles.]* Bay Godfrey, Ay tink the mackerels is happy today. *[Hiss.]* Nothin' to do but sit in the vaves and viggle around! *[Hiss-whistles at SAM who is sleeping, on the nod, behind his sunglasses, with head leaning on his shoulder.]* Some days Ay even vish Ay vas a mackerel. *[Pause.]* Except ven dere are seals and stuff around. *[Pause.]* Seals are bad for mackerels. *[Pause.] [To himself assuringly.]* It ain't no good being a mackerel ven dere is seals! *[Pause.]* No sir, it ain't no good at all. *[Pause.]* Not a bit... Bay Godfrey. *[Pause.]* Vat good is being a mackerel ven dere is seals? *[Raising gloved hands and luxuriating in sun rays.]* Ay ban mighty pleased Ay ain't no mackerel today because dere might be a big seal around! *[Hiss.]* It ain't no good being a happy mackerel ven dere is seals just around the corner. Seals ban mighty interesting... But not to mackerels... *[Hiss.]* Or perhaps dey are interesting! Some days it ban hard to tell. *[Hiss. Hiss. Hiss.]* Yes sir, it ban mighty hard to tell. *[Pause.]* Vales are interesting, too. Vales and seals svim around in the vater with the mackerels. *[Hiss. Hiss.]* Must be like sliding through your lunch! Now to be a vale might be nice. *[Hiss. Hiss.]* To be so BIG! If Ay was a vale Ay wouldn't eat mackerels. Ay'd eat seals! *[Hiss.]* Dat's a good idea! *[Pause.]* Den it vouldn't matter if Ay vas a mackerel because dere wouldn't be any seals! *[Hiss. Hiss.]* So, maybe Ay should be a mackerel. HEY, VAT YOU TINK, SAM? *[Pause.]* Vell, old SAM's asleep. Vy not be asleep? Might as vell be asleep as be a mackerel. *[Pause.]* On the other hand, if Ay vas a vale Ay'd vant to be avake. *[Hiss. Hiss.]* So Ay could eat seals. *[Pause.]* Ay certainly vouldn't vant to be a seal if Ay vas a vale. *[Pause.]* On the other hand if Ay vas a vale it might be fairly safe to be a mackerel and just stand around and viggle in the vaves! *[Hiss. Hiss.]* Vat you tink, Sam? *[Pause.]* Vell, old Sam's asleep. Just nodding around like a mackerel in the vaves. Bay Godfrey, it's a nice day. Vat about being a sea urchin? *[Hiss. Hiss. Stretches luxuriously in the sun. Yawns a little.]* Den Ay suppose the mackerels vould come and nibble on you! It vould probably be better to be a vale than a sea urchin and have mackerels nibbling on you.
VAT YOU TINK, SAM?

[Pause.]

SAM: *[In Japanese accent.]* Prease not to disturb. *[Hisses. Nods out.]*

––*Michael McClure,* **Gargoyle Cartoons**

the salmon; and Michael and Joanna McClure. Sundry members of Life Forum and Point Foundation rounded out the party.

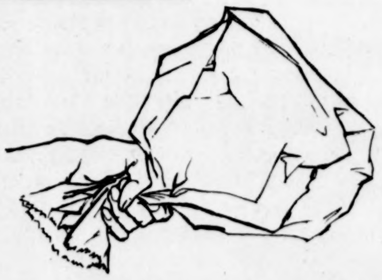
The highlight of the evening was Michael's reading of one of his **Gargoyle Cartoons**, a dialogue between a Swedish garter snake and a Japanese garter snake on the relative merits of being a seal, mackerel, or whale on a nice day. This he did with deadpan vaudeville accents, and cracked us all up. The group was so diverse and alive that everybody delighted everybody else, and a good time was had by all.

Such a good time in fact, that I was funded to keep a salon in Berkeley for a year "To bring people together who wouldn't necessarily meet, to provide them with a leisurely gracious environment in which to become acquainted and intelligently converse, to encourage skylarking," as I said in my proposal. It worked, and did a fair amount of good. But that's a year's worth of other stories.

The Marital Arts: Weaponry

Dear Catalog People -

Since boffers first appeared in the catalog, through succeeding mentions here and there, at the Earth Games, etc. we have meant to write. They are a neat idea but we and many others are eating the $15 they cost. The following accomplishes the same thing. About fourteen years ago, Jack and I arrived home from work tired, frustrated, and full of aggressions and with two big sacks of groceries. In a mutually spontaneous mood, we put the groceries away, blew up the bags, and belabored each other's head vigorously and enthusiastically. After a few minutes' workout, we collapsed and had a drink, happy and pleased with ourselves.



Two sessions produced all the necessary refinements–– wear a garden or work glove or an oven mitt and take off your glasses. Once you protect the knuckles with a glove, you can't get hurt and the sensation and sound are very satisfactory.

Nice to hear you're back in business.

Angela de Celle
Fairfax, CA

Notes on Provisioning a Small Boat for Extended Cruising

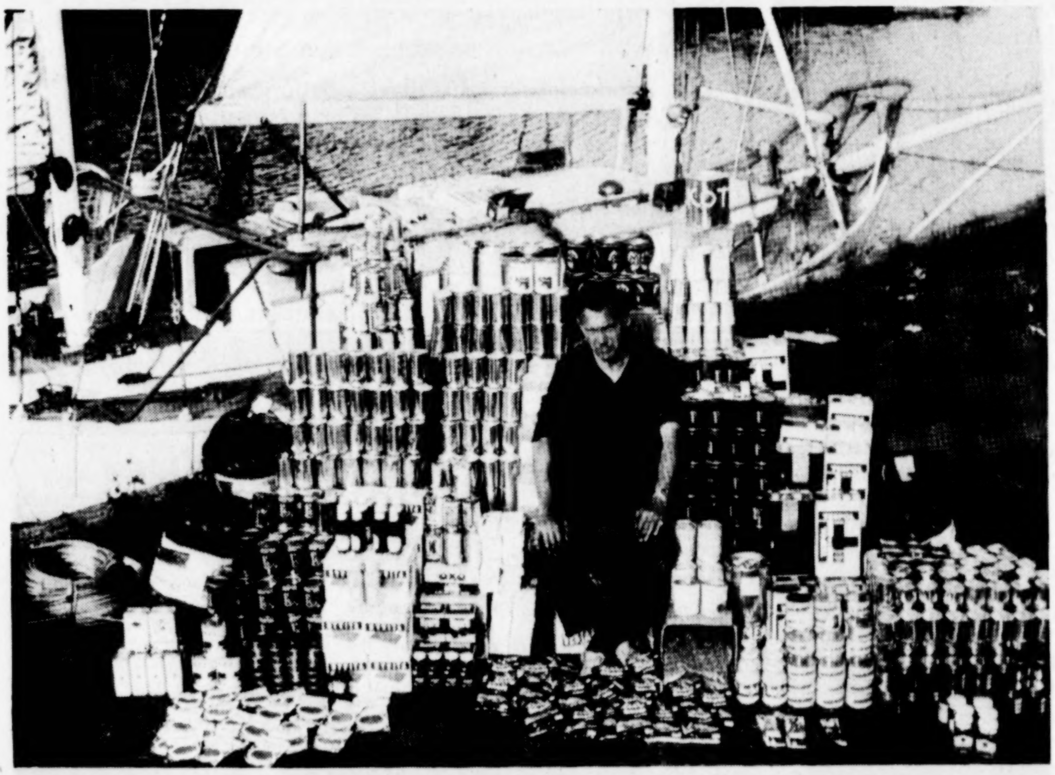
BY KATHLEEN PUMPHREY

So far there has not been a good, up to date or even fairly complete book published on how to provision small boats for extended cruises. In the meantime I hope that the following notes will help you avoid some of the anxiety connected with provisioning that many of my friends and I have experienced. I would appreciate your comments.

The picture of Robin Knox-Johnston was included in this article to give you an idea of the quantity of food you will be dealing with. I do not recommend his list of stores---nor does he. You can eat well while cruising.

To begin provisioning I recommend that you scan both **The New Cruising Cookbook** by Jones and Norton and **Cooking on the Go** by Groene. Both books contain valuable information on boats, galleys and cooking with canned foods. They give a general idea on where to begin. Make room for one of these books aboard.

Since I was provisioning for a year's cruise I was quite worried about nutrition. I began working out a list of stores by consulting the United States Department of Agriculture Handbook No. 8, **Composition of Foods.** From this publication I was able to determine the nutritive value of various foods in their different states of preservation. Then, I listed individual foods within the basic food groups---meat, fish, dairy products, vegetables, fruits, grains---in descending order according to their nutritive values. I figured how many servings we normally eat every day from each category, multiplied that by 365 and decided that we could never stow that much food in a 30-foot boat! I cut the list down to 100 days of "balanced diet" food values. I then chose a variety of foods from each category concentrating on the most nutritious foods we could afford. We found that a supply of food calculated for one hundred days will keep you going for nearly a year. While we were under way our food needs were very simple and we consumed much less than we normally do. Also, while you are close to shore you can count on at least fifty percent of your food coming from the sea---if you will take the time to learn how and make the effort to collect indigenous sea food. In fact, collecting and preparing local sea life was one of the most enjoyable aspects of cruising.



Robin Knox-Johnston with one circumnavigation-worth of food--30,000 miles, 10½ months, 1,500 tins. From: **A World of My Own**, *Morrow 1970. Kathy Pumphrey bets he regretted taking 250 lbs. of onions.*

Diane Beeston

The food you buy depends to a large degree on your own eating habits, but in provisioning it also depends on perishability, stowability, and availability of food in the areas where you will be cruising. I hope the following will answer some of your questions.

Most of your stores list will be made up of canned goods. Since they are, in general, less expensive in the United States, Panama is the exception, really stock up on them here. If your boat is very dry and well ventilated, and if you are not going to stow canned goods in the bilge, there is no great need to bother with stripping labels and coating the cans. I did, however, take the one precaution of marking the contents on every can. We had very little trouble with rust. Tins I purchased in December of 1972 are, in April of 1974, still in fairly good condition. However, if your boat is damp or if you plan to stow cans in the bilge it is wise to mark the cans, strip the labels, and coat every tin. You can coat the tins with shellac, parafin, bees wax, acrylic lacquer or the new exterior varathane. Shellac seems to be the cheapest and easiest method. When preparing canned goods in the tropics you must strip all labels, scrub the tins with detergent, mark them and then put on a protective coating——ashore. Cockroach eggs can be brought aboard if you don't take these precautions, and you don't need to ask for trouble from them.

According to an article by Donald M. Street in the October 1972 **Sail** magazine, the head of the United States Food & Drug Administration Lab in San Juan strongly suggests that everyone carry Diazinon aboard to control cockroaches. Supposedly, it is cheap, effective and if used as directed, does not harm people or pets. He suggests that you spray with it and also put some in the bilge to slosh around for a few days. I also have several cruising friends who swear by Boraxo. It seems that the little buggers are attracted by the soap and killed by the boric acid.

Now that we have hopefully eliminated your cockroaches I am going to give you a rundown of foods you might want aboard, where they are available and how to stow them.

MEAT

The most expensive and difficult item to find is good canned meat. Wilson & Company was a real find. Their meat, which is termed sterile meat because it can be stored without refrigeration, is preserved by a high temperature canning method and not by chemical preservatives. The meat is lean and very tasty. It also has the added advantage that it will keep after opening and without refrigeration in a fairly cool place for a couple of days. It is good hot or cold and takes less than ten minutes to heat. The following meats are available from Wilson & Co. in one pound fourteen ounce tins:

Beef roast
Pork roast
Smoked pork loin
Turkey
Corned Beef
Turkey and dressing
Ham
Mini ribs

Ham is also available in one pound and one- and one-half pound tins. The meat runs almost $2.00 per pound wholesale. That sounds expensive but it's not as expensive as it sounds. Wilson meat is boneless, so lean that they include a small strip of fat in most cans for flavor, and since it is completely cooked, there is no shrinkage.

Wilson & Co. is one of the largest meat packers in the United States and their products are available in supermarkets throughout the country. You will, however, save quite a bit by dealing with Wilson directly. The company sells wholesale in case lots and they have a one hundred and fifty pound or seven case minimum purchase order. There are 12 tins to a case. Give them at least a ten day notice to fill orders.

It has been my experience that Wilson meat is one of the best foods to have aboard. It is nutritious, it keeps well (mine is currently two years old and fine) and you will find that it is a great trade item both with native populations and with other boats.

On the Pacific coast their addresses are:

Wilson & Co., Inc.
290 Town St.
San Francisco CA
415-989-5910

333 South 9th Ave.
City of Industry CA 91746 (Los Angeles area)
Manager: Carl Moore

Atlantic coast distributors:

1 Sparyard St.
New London CT 06320
I. A. Posplethwaite

1849 North West 1st Ave. Rm 8
Miami FL 33136
J. H. Dygert

3000 Kingman St. Suite 216
Metairie LA 70002
D. R. Menesses

1515 Lisbon St.
Lewiston ME 04240
J. C. Babcock

126 Newmarket Square
Boston MA 02118
R. J. Damatal

200 Sumner Ave.
Kenilworth, NJ 07033
E. A. Dziak

772 Washington St.
New York NY 10014
D. E. Grossblall

1125 Berryhill St.
Harrisburg PA 17104
J. M. Brady

Lake & Bank Sts.
Burlington VT 05401
R. J. Valyou

859 Jefferson St.
Danvill VA 24541
C. C. Casper

Wilson Meat is also available in the Pacific:

Wilson Meats Ltd.
Hobson Tower East
Federal St.
Auckland, New Zealand
A. H. Smith

Wilson & Co.
2002 Kalani St.
Honolulu HI 96819
R. C. Thorne

When writing Wilson & Co. be sure to specify that you want information on their tinned main meal meats. They also have a line of high quality freeze dried back packing foods. I do not recommend that you put back packing type food aboard. It is expensive and uses your precious fresh water supply.

The Danish canned bacon is very good, expensive and not very nutritious. I would put on a tin or two for a treat, but the Wilson Smoked Pork Loin is a delicious and more nutritious breakfast substitute. Danish bacon is also available in Mexico, the Caribbean and in Papeete, Tahiti. Wilson meat is not.

Whole canned chickens can be made into a reasonably good roast chicken. I do not think they are good for much else. They fall apart easily and all that bone takes up space. They are hard to deal with when you are underway and in most ports you can find good fresh chicken that is better than the U.S. equivalent. Buy Wilson's turkey.

In the "not too bad, can be doctored to taste decent, and comes in handy" category are:

Swifts Premium Sloppy Joe
Mary Kitchen Roast Beef Hash
Dennison's Chili

Dinty Moore beef stew, believe it or not, is wonderful in bad weather. Sometimes it is all you can do to get a can open and light the stove. If you are planning a long cruise put on a case––you may really need it. To cook tinned food in bad weather, punch holes in the tops of the cans with an ice pick, and wedge them in a well-secured pot filled with four inches of boiling water.

Canned tuna fish and salmon are very versatile foods to have on board and they are very expensive out of the U.S. They catch and can a lot of tuna in Mexico but the prices there are outrageous. If you go through Mexico be sure to try their canned abalone, clams, conch, etc. They are less expensive than their equivalents in the United States and very good. They make excellent sea food cocktails. Also do not overlook canned mackerel. It is the best bargain in the meat market and can be made into an excellent chowder.

DAIRY PRODUCTS

Eggs:

There are many ways to preserve eggs: dropping them in boiling water for a moment; dipping them in hot lard and packing them in salt; dipping them in water glass; painting or rubbing with vaseline. I chose vaseline and my eggs lasted beautifully. We were still eating them boiled and scrambled six months after they had been treated! I kept a control group around for eight months. The eggs didn't smell bad but their texture and color had changed by then. We were reticent to taste them. If you use vaseline––and I highly recommend it––be sure of the following:

The eggs must be very fresh––no more than one day or so old
They must have never been refrigerated––if you can get unwashed eggs that is supposed to make them last even longer
Be sure that they are very well coated with vaseline
While they are being stored, turn the eggs once a week or so.

To coat with vaseline rub vaseline between your palms until it is warm then smear the eggs with it. The vaseline does not have to be melted and painted on. I kept my eggs in paper egg cartons in the coolest place in our boat which was the head. It only took a few minutes per week to turn each carton. I never lost an egg.

In foreign countries because of language or other problems it is often difficult to obtain really fresh eggs––or to be sure that they are fresh. If you are near a coast where eggs are available—–say you plan to cruise in Mexican waters before jumping off to the Galapagos and the South Pacific Islands—–I would recommend that you eat the local eggs where available and save your cache of preserved eggs for the Pacific Islands where they are often difficult to obtain.

When buying eggs you can determine their general freshness by dropping them in a bucket of water. A fresh egg sinks immediately to the bottom, and as they get older eggs sink progressively slower. An egg that floats is gone. In the San Francisco Bay Area reliably fresh good eggs can be obtained from the Empire Egg Co. in Petaluma.

Milk:

You can buy tinned liquid whole milk that needs no refrigeration or you can stay with the low fat dried milk. According to Janet Groene you can improve the taste of dried milk by adding a few teaspoons of powdered coffee creamer or by adding a sprinkle of sugar and a drop of vanilla to each quart. The easiest solution if you are going through Mexico is to buy it there. Nestle makes a dried milk called "Nido" in Mexico and it is much better than the American brands.

Cheese:

The waxed cheeses I purchased and stowed in a cool place over the water tanks lasted only two months in the heat. The oil melted out of them and I was very happy that I had wrapped each cheese in two plastic bags! The Gouda changed a bit too—–it continued to age and turned into—–well looked like Swiss cheese. The flavor didn't exactly improve but we ate it anyway with no ill effects.

Tinned cheeses can also be tricky. Darigold makes a tinned cheddar cheese, but the tins started to go bad in two weeks aboard "Wanderer." A tin of Danish Feta burst for us after about three months and made quite a mess. We did, however, have very good luck with canned Camembert and Brie. Be sure that the brands you buy do not have to be refrigerated. Camembert and Brie can be used in many ways—–we even made a decent pizza with it! Parmesan cheese also keeps very well if sealed in a plastic bag with a twisto.

Tinned cheese that does not explode in the heat is available in Panama, the Caribbean and in Papeete. The best brand available in Papeete is Chesdale and I hear that the most palatable is their plain cheddar. It is currently selling for between $0.56 and $0.61 per half pound. Milk is also available in these areas.

Butter:

Margarine seems to keep forever, but I'll never get used to it. Darigold makes an excellent butter and packages it in convenient twelve-ounce tins. You can't imagine what a treat it is to have fresh butter without refrigeration weeks away from civiclization! The manufacturer recommends that the tins of butter be kept frozen until ready for use—–an impossible requirement on most small boats. I have, however, eaten three-month-old unrefrigerated Darigold butter and it was great! The butter on "Wanderer" even lasted nine months. Store in as cool a place as possible. The butter lasts well unrefrigerated after opening, but we did eat it very fast.

You can order the butter directly from Darigold and get wholesale prices or you can write for a list of their retail outlets.

There are forty-eight tins to a case and Darigold requires a three-case minimum order for delivery. If you buy three to five cases the price is $0.95 per twelve ounces; six to ten cases and the price drops to $0.93. Prices are subject to change, and believe it or not, Darigold's butter prices are going down—–for the moment. For information write:

Consolidated Dairy Products Co.
635 Elliot Ave. West
Seattle WA 98119
Attn. Mr. Arigoni

The Seattle address is for their main office. You can also obtain information and place orders through:

Darigold
900 Lenzen
San Jose CA 95126

Darigold
1474 North Indiana
Los Angeles CA 90063

I have no information on canned butter for the Atlantic Coastal areas but, if you wish, Darigold will ship. On the Pacific Coast allow seven to ten days for shipping.

I never found tinned butter while cruising in Mexico, but it is available in Panama, the Caribbean and in Papeete. If you plan to cruise in the South Pacific put on enough butter or margarine to get to Papeete. There isn't much tinned food available in the Marquesas and the prices are high. Almost everything is available in Papeete—–including excellent tinned butter from Australia and New Zealand. Golden Fern and Acorn brands have been highly recommended. These butters keep very well, and the cost is lower than in the U.S.—–between $0.53 and $0.65 per twelve-ounce tin.

There is another solution to the problem of storing dairy products. Modern technology combined with the apocalyptic view of the Mormons have produced all kinds of dried foods—–including every dairy product you could use. I have had no personal experience with the butter, cheeses and cream powders, but I have heard that they are excellent.

The products are packed in No. 10 tins and Ron Burrup of Sam-Andy claims that their dairy products will last for nine months after they have been opened. I'm not sure how they would keep at sea, but I had excellent luck with low moisture peas which were also packed in a No. 10 tin, so I think I would take a chance. For information on Sam-Andy's dried foods write to:

Sam-Andy
46 Herbert Ave.
Salt Lake City UT 84111
Attn. Dean Burrup

I think that Bernard Food Industries, Inc. has freeze dried or powdered every food known to man! Their list of products is incredible—–even powdered roquefort! They grow their own food, use no pesticides or preservatives and they give the nutritional breakdown on each can. I have not had the pleasure of tasting their dairy products but their low moisture Oregon peas are of such high quality that, when properly prepared, you almost can't tell them from fresh peas! For information write to:

Bernard Food Industries, Inc.
222 South 24th St.
P.O. Box 487
San Jose CA 95103
408-292-9067

and ask for information on their "Stor-A-Pack" products. Bernard also has branches in New York, Boston, Los Angeles, San Francisco and San Diego. Both Sam-Andy and Bernard will ship one or more No. 10 tins to private parties.

FRUITS AND VEGETABLES

Try to stow as many fresh fruits and vegetables as possible. The nutritive value is higher, and they are so much more appetising. Buy them as fresh as possible, and try to buy produce that has never been refrigerated. They will last much longer. It has been my experience that the weight of one piece of produce upon another, chafe, dampness and poor ventilation are the main causes of spoilage. On our boat, since we had no room on deck to stow fresh produce in the traditional covered basket method, I strung almost all of my fruits and vegetables in long tubular nets and hung the nets on cup hooks, athwart ships on the overhead. This proved very successful. There was no squashing problem, sprouts could be spotted and pinched off easily, ventilation was good, and in damp climates the tubes are easily transported topside for airing and sun drying.

I made my tubular nets out of used ½ inch mesh fishing nets. They are inexpensive and available in shops that cater to professional fishermen, Be sure that the net you buy is of small mesh and without knots. The larger the mesh the more weight each strand must support, and this produces depressions on the produce that causes spoilage. Knots in the nets also cause depressions and chafe with the same results. Buy the ugly machine-made nets. You'll be happier in the long run.

In general, produce grown in northern climates——especially onions——last longer than those grown further South. The onions I purchased in August in San Francisco out-lasted those purchased in San Blas, Mexico in the same heat. The San Francisco produce was good for seven months, but the San Blas onions rotted in two weeks. The same is true of potatoes. I would advise buying the freshest unrefrigerated produce as far North as possible. If you are coasting South, buy local produce and save your northern stores. Always keep a close watch on all of your produce. Pinch off sprouts as they appear and if they show signs of going, begin eating! When you notice spots of rot beginning on potatoes or onions cut off the rot immediately and place the vegetable cut side up in hot sun until a scorched scar appears. Then re-stow in the nets. They'll be good for a few more weeks—— but watch them.

Fresh garlic, if of good quality and truly fresh, will hold for six months or so. I stowed the bulbs in a net hung vertically instead of horizontally. They were fine.

Yellow Vegetables:

Yellow vegetables travel well and are an excellent source of vitamin A. The main ones to put aboard in descending order are sweet potatoes, butternut squash, carrots and acorn squash.

Sweet Potatoes travel very well in nets and will last three to four months. They are available in southern countries.

Butternut and Acorn squash were not available in Mexico and I have never heard of anyone finding them in the Pacific Islands or in the Caribbean. My squash lasted for seven months. I hung it in the net tubes.

Fresh carrots will keep for over a month if they have never been refrigerated and if they are fresh when purchased. Store them four to six to a bag——depending on the size of the plastic bags. Do not seal the bags or they rot. Do not expose the carrots completely to the air or they become soft and flabby.

Green Vegetables:

Spinach wilts, bruises easily and rots quickly so in the heat it cannot be counted on for more than three days. This seems to be true of most other greens——dandelion, chard and mustard.

Lettuce, especially romaine and red, will last over a week, even in heat, if the root or cut end is placed in a little fresh water. When slime accumulates on the root end cut it again and change the water. Adelle Davis maintains that this manner of storage leaches the vitamins from the vegetable into the water. However, since lettuce doesn't have too much food value anyway, I haven't worried about it. A fresh crunchie green salad is so satisfying several days out that its food value really doesn't matter.

Cabbage is excellent for cruising. The food value is higher than for lettuce and if it is fresh and unrefrigerated when purchased it will last for three weeks or so. In moist heat where tomatoes last only three days, a head of cabbage will last at least a week and a half even if it is cut. Stow cabbage in a net without a plastic bag. The outer leaves will dry out but the inside will be fine. If you cut off air circulation by placing them in plastic bags——voila——rot!

Cucumbers, Bell Peppers, Scallions, Celery:

Cucumbers will last two to three weeks in a net without plastic. Bell peppers will keep one to two weeks in the same way. Green onions keep well for two weeks if placed root-end down in a large peanutbutter jar. This allows enough circulation of air to prevent slime and rot, yet keeps the onions moist enough to keep them from wilting. Do not crowd them and be sure the glass jar is always secured with shock cord. Celery is expensive and of generally poor quality in Mexico, the Caribbean and the South Pacific. I stowed my U.S. celery in unsealed plastic bags. It kept about two weeks, but then it was fairly cool. Be sure to take plenty of dried celery, bell pepper, parsley, onion and garlic flakes.

Sprouts:

I sprouted both alfalfa seeds and azuki beans under way in glass jars with great success. I secured the jars with shock cord on a shelf near the companionway. They went through a gale with no ill effects. You don't have to rinse the sprouts in fresh water every day. Watch them carefully. If they begin to dry out or if they develop a pungent odor rinse with a little fresh water.

Fruit:

Fresh grapefruit, oranges and apples travel well in the tubular nets. In general, grapefruit outlasts oranges, and oranges will survive apples. You can count on them for a month or more. Lemons and limes will keep much longer if wrapped in tin foil. You can count on them being good for over a month.

Tomatoes are more difficult to store. When they begin to ripen and if the boat is rolling——you can imagine what happens to them if stowed in nets. When green, they get net marks, become bruised and rot. I had thirty-two tomatoes when we left Cabo San Lucas for the bash up the coast. I stored them stem side down on a ledge where they couldn't roll and they lasted for three and a half weeks. The temperature was relatively low thanks to the coastal fog, but the sea conditions were pretty miserable. However, without sea motion in the moist heat of places like Puerto Vallarta, tomatoes rotted in three days. The number of fresh tomatoes you put on board should depend on the type of climate you are going into. You might try that business of wrapping tomatoes in tissue paper or paper towels, but I definitely would not stack them on top of each other. Pressure bruising seems to be the chief cause of rot. Also allow air to circulate around them or they like to mold.

Dried Fruit:

Do not forget dried fruit. It is nutritious, delicious and easy. I packed mine in plastic bags and placed the bags in plastic containers. After seven months the apricots and figs were good; the raisins had become very sticky but were still edible and some of the prunes had molded.

Vegetables Canned:

Although there are many excellent freeze dried or low moisture products on the market, and although they do take up less space, I think it is wise to use primarily the traditional tinned vegetables. They provide another source of liquid without using your fresh water supply. Before you start buying in case lots taste different brands of the same vegetable. Buy the ones you like best——not the cheapest——you will be happier in the long run. There is nothing like avoiding that cheap can of awful peas for months on end until the only vegetables you have left is a case of the bad stuff.

Put on normal canned vegetables: spinach, carrots, onions, potatoes, tomatoes (buy tomatoes in all forms: paste, sauce, stewed, whole. Canned tomatoes are extremely useful) corn and red beets. Don't forget special vegetables like canned mushrooms and Del Monte's excellent zucchini squash in tomato sauce. Sauerkraut is another vegetable to have plenty of. It is nutritious and easy. In one pan you can make a fine meal with Wilson smoked pork, a can of sauerkraut, a few caraway seeds and bisquick dumplings——in about half an hour's time. Sans dumplings, the meal is done in ten minutes. As with all of your provisions, try for as much variety as possible. Being at sea can become boring and you don't need boring food to add to your discomfort.

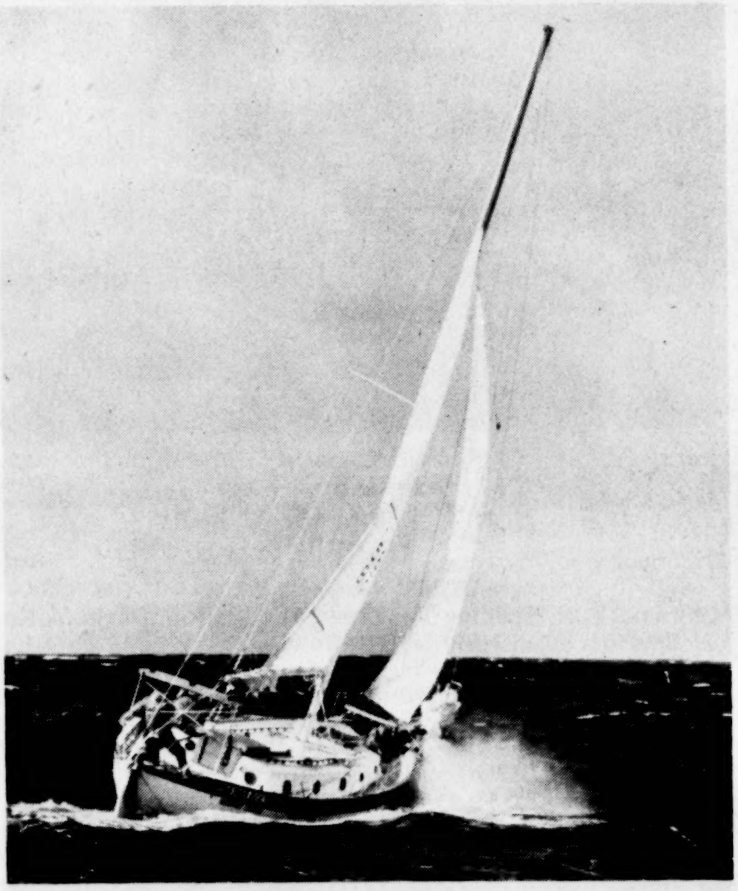
Vegetables Dried:

Potatoes

Instant mashed potatoes are easy and fast. They taste all right when you have nothing else——and that does happen. Buy a brand that you like——not just a super cheapie. Don't be afraid to buy them in No. 10 tins. My potato flakes were opened, covered with their plastic lid, and they were still fine four months later when we finished them.

Peas

The only other vegetable I purchased in quantity in a dehydrated state was Bernard's low moisture Oregon peas. They are far superior to canned peas. They are delicious, the nutritive value is greater and the price of a No. 10 tin is about the same price as its equivalent in wet-pack peas. To prepare them follow the directions on the can, but omit the salt and use half fresh water and half sea water. Also when you order from Bernard do not let them push you into buying in their small convenient camp pack quantities. The food price really jumps for all that packaging and you have a difficult enough time disposing of trash at sea. Since Bernard has done some provisioning for several Trans-Pac racing boats, they will state with a great deal of confidence and authority that you must use their small packages because the dampness at sea will get into a No. 10 size tin and ruin their fine product. It has been my experience that they are wrong. I have had no trouble with moisture getting into my peas. They have been on board and open for over a year and I use nothing more to keep them dry than the plastic top that came with them. Stow in a dry area.



As I mentioned in the dairy section, Bernard dries just about everything, including vegetables. I used only their peas because the corn, carrots and mixed vegetables had to be soaked and cooked for a longer period than their canned equivalent. The peas require no soaking and they are done to my taste in under ten minutes.

Legumes

Split peas are nutritious and inexpensive. The cooking time if they are soaked is not too long and split pea soup made with carrots, onions, dry celery, bay leaves and Wilson smoked pork is delicious in cold foggy weather. I put ten pounds of them aboard. For two of us, five pounds would have been plenty for a nine-month cruise.

Beans

I loaded ten pounds of kidney beans, twenty pounds of navy beans and twenty pounds of soy beans which were misplaced before we set sail. We ate all of the kidney beans. They make such good cold salad, casseroles, chili and refried beans. We tired of the navy beans quickly and still have fifteen pounds or so left. Next time I will take fifteen pounds of kidney beans, five pounds of navy beans and five pounds of soy beans.

FLOUR AND GRAINS

I put brown rice, cracked wheat, whole wheat flour, whole wheat pastry flour, white and rye flour aboard along with bisquick and corn meal. I was happy to have every one of them. Brown rice and whole wheat flour are difficult to get in Mexico but can be found in the Caribbean; brown rice and whole wheat flour are impossible to obtain in the South Pacific. Rye flour can not be found in any of these areas. Most of the flour obtained in the Caribbean, Mexico and South Pacific develop weevils. You can fumigate with dry ice——if you can find it. For instructions see page 27 of the **Family Storage Plan** by Bob R. Zabriskie. Or, as Mr. Zabriskie suggests, you can *"place the grain in a shallow pan at a depth of not greater than ¾ inch in an oven of 150° for 20 minutes. Leave the oven door slightly open to prevent over-heating."* He maintains that this procedure destroys *"all stages of insect pests if the wheat is thoroughly heated."* If this oven procedure works on wheat, I see no reason why it wouldn't work for flour, rice, etc.

Another common practice is to pack your grains and flours with bay leaves. I have the feeling that bay leaves kill weevils with about the same efficiency that eucalyptus seed pods placed around a cat's neck keep fleas away. However, I used only bay leaves and I have never seen a weevil in any of my dry goods. They were purchased in the U.S. and are now a year and a half old.

STORAGE OF DRY GOODS

I stored all of my dry goods in one or five-gallon mayonnaise containers which are available free from restaurants that have a large sandwich or salad trade. The one-gallon containers have wide mouths and metal lids. They hold up very well, and I have had no rust problems with the lids. Scrub the containers with detergent to discourage cockroaches, place a one or a five-gallon heavy-duty plastic bag (the heaviest plastic bags are available through airport catering services) in each container, fill, close with a twisto and secure the lid. I have never had a problem with moisture getting into the containers. This is also an excellent way to stow batteries and spare parts. If your boat is very large the five-gallon containers with the snap on lids are perfect. They are also useful for soaking and doing the laundry. Fill them with dirty laundry, salt water, bleach and Shacklee's Basic H, cap and let your clothes slosh around for a day or so before getting out the wash board.

A word here about Basic H. It is a concentrated biodegradable cleaner that lathers beautifully in salt water. I washed my hair, body, laundry and dishes with it in salt water for nine months without benefit of fresh water. It's great. It is manufactured by the Shacklee Corporation and is available throughout the U.S. You should be able to locate them through your local phone book. If not, write:

Shacklee Corporation
P.O. Box 3625
Hayward, CA 94540

Shacklee also produces an industrial strength cleaner, Basic I, that does a great job of cleaning the bilges.

If your storage space is too small to handle the one-gallon containers for storage of dry goods, go to a large pharmacy or hospital and ask them to save their larger plastic pill containers.

Miscellaneous Stores:

I really do not want to include a complete list of stores. They vary so much with taste. Consult Eric C. Hiscock's **Voyaging Under Sail** pages 242 to 247. He gives some interesting information and includes a list of stores consumed by two people in eighty-one days. **The New Cruising Cookbook** by Jones and Norton has a good list of basic provisions on pages 62 to 67. It will remind you of many items that are easily overlooked. However, both books overlooked important items like peanut butter, Tang, Real Lemon, soy sauce, and wasabi paste. All of which I found invaluable.

Along the coast we found soy sauce and wasabi paste very important. Many fresh fishes are delicious served raw as sashimi and after you have eaten your own you will never be satisfied with sashimi served in the best Japanese restaurants. Mix the wasabi or green horseradish powder with enough water to make a thin paste and let it rest ten minutes. Fillet the fish and inspect the flesh and innards well to make sure that there are no parasites. Then slice across the grain in thin slices. Dip the fish just a little bit into the wasabi paste——be careful, the horseradish is very hot——and then dunk in soy sauce. It is a gourmet's delight. If you can not find wasabi paste or run out, dry mustard will do.

FRESH SEA FOOD

Along the coastal areas of Mexico, the Caribbean and South Pacific, sea food is plentiful——except, I hear, in Tahiti. Everywhere else you can count on at least fifty percent of your food to come from the sea if you take the trouble and have the gear on board to get it. In the Sea of Cortez if you know how, you can easily catch, dive for, or pry off enough fish, scallops, clams and oysters in less than an hour to stuff two people for the day. But the Sea of Cortez is especially rich. The best book on how to catch sea food (except fish—— he is a bit weak there) is Euell Gibbons' **Stalking The Blue-Eyed Scallop**. Mr. Gibbons is very knowledgeable; he includes many illustrations, and he gives you historical information on how other cultures and ancient peoples savored many exotic sea food delicacies that most novices cringe over. He tells you how to find, catch and prepare more edible sea life than any other author I have seen. **Stalking the Blue-Eyed Scallop** vastly increased our food supplies, but more important, it increased our enjoyment and appreciation of the life around us. I wouldn't sail without a copy.

Bottoms Up Cookery by Robert B. Leamer, Wilfred H. Shaw and Charles F. Ulrich is definitely a book you should look at. The authors are divers and they relish the hunt and kill a bit too much for my taste. The books greatest value lies in the information on diving for fish and shell fish, and on how to clean sea food. They not only tell you how, but show you in photographic detail.

Bottoms Up Cookery also gives valuable information on smoking your fish on the beach, preparation of sea food for a cooking pit and pointers on how to maintain fresh game without refrigeration.

Neither book tells you that we found you can keep shellfish alive by placing them in a burlap bag or fish net and hanging it over the side. Lobster and abalone will remain alive from four to five days, clams and their relatives will live a week or more. If you must up anchor, place the shellfish in one of your five-gallon plastic containers and change the water every few hours to keep the oxygen content great enough to support the life. Don't crowd.

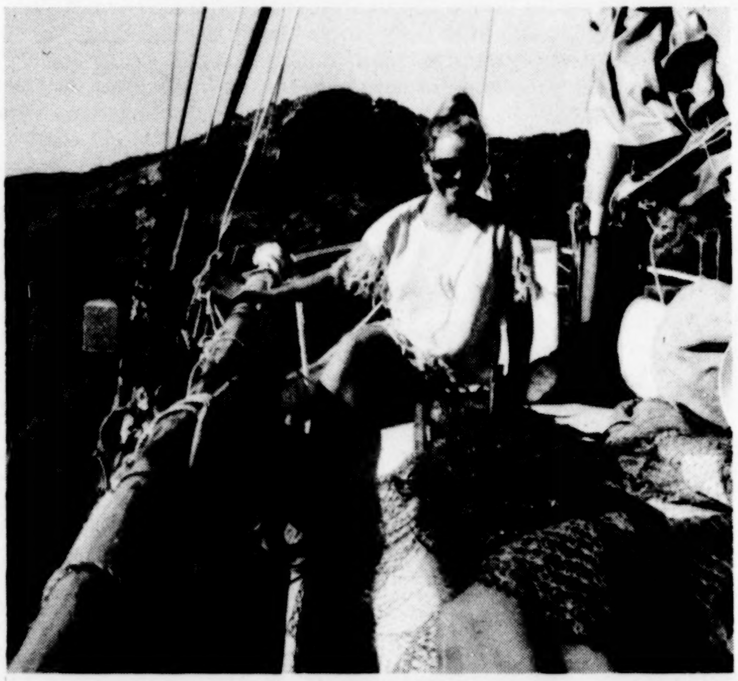
Preserving a large fish is more difficult. It will keep a day or so if gutted, bled and kept wrapped in wet burlap. According to **Bottoms Up Cookery** *"fish smoked for twenty-four hours will keep from one to two weeks."* You can also dry the fish by following these instructions:

> *Clean and bleed fish; remove head leaving collarbone intact. Split into two sides, removing backbone. Cut into one-inch strips, connected at collarbone. Dump in brine (2½ lbs. salt to 1 gal. water). Soak one hour; take out and hang in shaded breezy place until dry (anywhere from one to two days, to one to two weeks depending on the weather!)*

According to my friend, Beth Cook, this process works even if the boat rolls and dunks the fish in sea water! The fish keeps quite well, but it must be soaked in fresh water before cooking and it isn't exactly a gourmet's delight.

Food can also be kept fresh in a pressure cooker. After cooking the food remove the cooker from fire. Leave the pressure guage on and allow cooker to cool naturally. The contents will be preserved for several days without refrigeration. Before eating, bring up to pressure again.

Happy cruising!



Kathy Pumphrey off Mexico mainland with lobsters, 50¢ each.

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Thor Heyerdahl Preserves

Mrs. Kathlene S. Pumphrey
Whole Earth Epilog

Dear Mrs. Pumphrey:

Your letter of April 17, has just arrived. Unfortunately Dr. Heyerdahl is away at present and I shall show your letter to him upon his return in a couple of weeks' time.

However, I can give you the following information:

- The recipe for preserving eggs in lime is as follows:

  in each ceramic jar place a stratum of eggs and a stratum of slaked lime which has been watered to form a paste. This recipe was given by Captain Albert De Bock, 22 Frans de Ceusterlei, Schoten (Belgium).

- All the hard bread on board RA came from Egypt and Russia. Georges Sourial had it especially baked for him and Senkevitch had ordered it in local shops. Apparently, although very hard, it was extremely good.

  Mr. Georges Sourial
  36, Av. El Arouba
  Heliopolis
  Cairo - Egypt

  Dr. Yuri Senkevitch
  c/o Lev Sjdanov
  pr. Vernadskogo 125 kv. 46
  Moscow - U.S.S.R.

- Salted meat was bought in Norwegian stores which usually supply ship's provisions. It was stored by them in barrels. We know that it had to be soaked in fresh water for several hours before it was eaten, to remove the excessive salt. It should be available also from any good suppliers of ship's provision in the U.S.A.

  Besides, the wife of the Pacha of Safi (Morocco) had prepared meat boiled in fat and then put in jars made air-tight with wax.

- "Sello" was prepared by Maroccans, and its main ingredients were honey, cocoa, and finely ground almonds.

- Uncooked ham and salame, as well as stockfish, were hung under the cabin roof and they all preserved well.

- Other provisions consisted of: rice, Italian spaghetti, sugar, powdered milk, coffee, almonds, honey, raisins, dried prunes and apricots, dates, various kinds of nuts, potatoes, a kind of red Egyptian tea which was extremely refreshing.

- Butter was boiled and put in jars which were hermetically sealed with cork and paraffin wax.

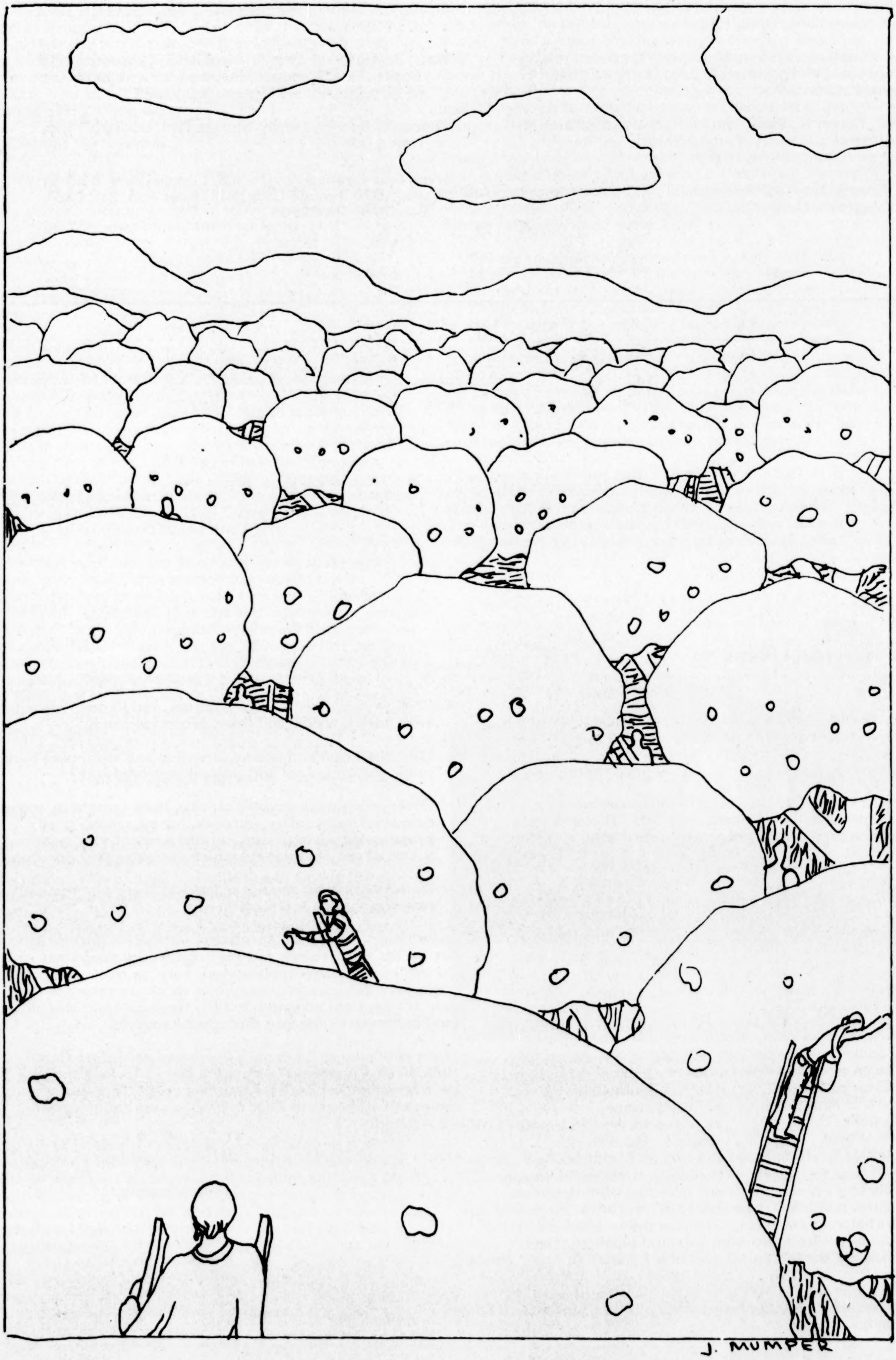
Sorry I cannot give you more exact and helpful information, but the list of provisions and the original recipes and way of storing the food have not been kept here. In fact the job of preparing the food was delegated to various members of the expeditions. I can only add that Dr. Heyerdahl said that all food preserved all the way through the voyages.

I have noticed that Sir Francis Chichester carried on Gipsy Moth III eggs preserved by painting them with bees wax, but the system was not very satisfactory. In his book some names and addresses of English suppliers are also given in the Appendix.

I hope the above information can be of some help to you,

Yours sincerely,

Natalia Jones,
secretary to
Thor Heyerdahl, Ph. D.
Colla Micheri
Italy



J. MUMPER

APPLE PICKING

BY RICK FIELDS

I first heard about fruit tramps from a six-foot, fifty-year-old former high school English teacher from Phoenix. He made enough money picking apples to winter in Mexico.

Of course he was into his fourth year picking and he knew which orchards were possible and which were impossible. But it was the light in his eyes when he talked about picking apples that convinced us to head for Washington State.

Our friends in Albuquerque discouraged Ann and me. "You must be crazy, you won't make any money, the camps are cesspools, there are knife fights every night, the work is back-breaking, if you go with a woman they'll rape her."

I remembered what my teacher friend had said when I told him everything everybody was now telling me: "That's what I thought, too, for twenty years teaching high school in Phoenix."

We ended up in the Okanogan Valley, in the town of Oroville, just across the Canadian border, at a small family-run orchard. There was an out-house, a pump, a stash of twisty apple-wood for the stove, and a refrigerator. It was luxurious compared to the dirt-floor palm-roof Mexican hut we had just left.

The next morning we met our first fruit tramps. They were into cars, beer, working and drinking hard. They would do anything for a friend or a fight. They knew every bar in the area—— and the cops in every county. They told endless stories about speeding through towns where they had been arrested the day before for drunken driving.

In a way they were picking for the same reasons we wanted to. They liked the freedom they imagined it gave them; they found steady factory work oppressive. Like the young long-haired kids who were beginning to work orchards they preferred a mobile, nomadic, unsettled seasonal rhythm. They also had a fierce pride about their work. They considered themselves Masters. "This orchard ain't worth a shit," Al told us over beer and potato chips. He was using the slack time before real picking began to check out other orchards. The apples at our orchard weren't thick enough, or big enough. The trees were too tall—— he preferred an orchard with more semi-dwarf trees, which can be picked mostly from the ground.

He took the apple season seriously. Of all the fruit you could pick——pears, cherries, peaches——apples paid best. He usually clared a thousand dollars in the two-month season; that was enough to buy another old car and get him and his family down to Florida in time for the oranges. He would rather steal chickens, he said, than do "stoop labor"—— strawberries, tomatoes, cotton were for Mexicans and blacks. Fruit-tramps were not "migrants," they were proud aristocrats of the ladder.

All the time hitching up to Washington I had thought about falling.

The first tree I picked was the first one I fell from. It was an old towering macintosh shaped like an upside-down L, with no soft, springy branches. There was no way I could hurt it; it was the kind of tree that teaches.

The foreman showed us how to put on the picking-bucket. You are harnessed onto a bucket which, when filled, can weigh as much as fifty pounds. The straps come under your arms and criss-cross behind your back. They support an aluminum container with a collapsable canvas bottom. You open the bottom with two cords hooked on either side of the bucket, lean over, and gently funnel the apples into the bin.

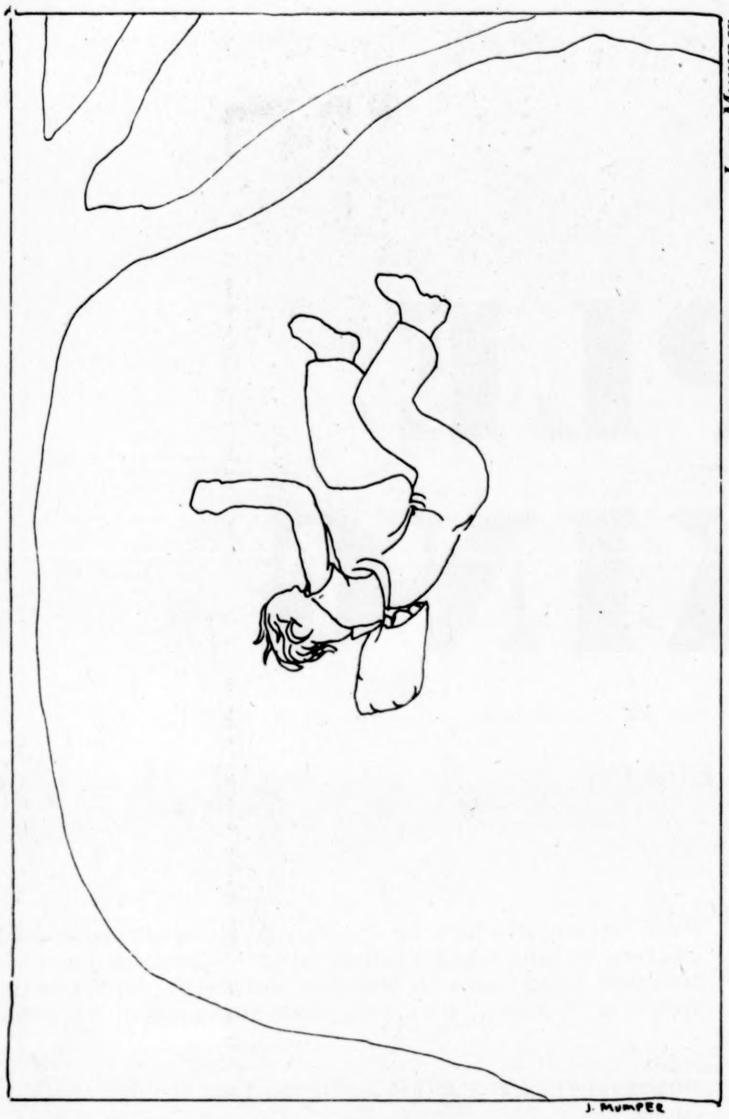
My ladder was a sixteen-footer. It had a third leg which is hinged and swings out to the right angle for the height you want.

I climbed slowly, clutching each rung, not looking down until I reached the top. I was much higher than I had imagined. Add your own height to the ladder's; I was looking down from twenty feet, so I clung to a solid branch and began picking with one hand, shins pressed painfully against the ladder-rungs.

After I had all the apples I could reach I saw three more glistening in the morning sun just a few inches away. If I left them there I would have to descend the ladder, unload my apples, move the ladder another foot, and climb it for only three apples. But if I could just manage to stretch my arm another inch, to lean just another. . . .

The fall began. A slight shifting of the earth, a slipping of gravity. The third leg went askew, the apples strapped to my chest pulled me down. I grabbed for the branch like a desperate outfielder lunging for an over-the-wall hit, and missed.

I landed. Nothing was broken; about two-thirds of the apples were still, miraculously, in the sack. I lay luxuriating in the



Joan Mumper

feel of solid earth; then I looked up; there they were, three golden apples shining against the empty green tree.

Apples bruise from more than falling, we learned. As the owners of the orchard checked our work, they were able to pinpoint just how an apple had been bruised by the shape of the discoloration. Thumb-print sized bruises came from pulling the apple off, tightly gripping it. Not very much pressure is required to leave a bruise which takes days to show itself. The correct way to pick an apple is to lift the apple up, twisting it, so that it will fall into your hand with the stem intact. Breaking off more than the stem is called spuring. You are taking next year's potential buds.

Another shape of bruise showed the apple had been bounced against the wire lip of the bag. Or it had been dropped into the bag. Or it had knocked against the rungs of the ladder as you were descending. Or you had hit the apple with your ladder while placing it.

After the owners had left us with instructions to pick as carefully as possible, and not to leave even a single apple on a tree, Al came by to demonstrate his way of picking.

Where the owners had been interested in care, Al was interested in speed.

The only way to make money, he told us, was to pick with both hands: twice as many apples. To pick with both hands you had to place your ladder so that you would not be afraid of falling. He said to place your ladder so that if it slips off a branch, or the branch breaks, another branch will catch it. Place it so that it will fall into the tree. The springy apple-boughs bend with you and you can slide them down. The rule was stay with your ladder when it tips.

We also learned to place the ladder so that it slips between the largest grouping of apples. The less moves you make with your ladder the faster the tree is picked.

"Got it?" said Al, "now watch." He grabbed his ladder and flung it against the tree like a man scaling an enemy wall; miraculously it stuck solid where it fell; then he ran up the ladder arms and hands flying like wind-mills; by the time he reached the top his bag was overflowing. He ran down backwards, cigarette in mouth.

Then he ran to the bin, which is a square wooden box raised off the ground by two skids high enough for a fork-lift to slip under. Each bin holds 18 bushels, and pays about $5.00. Al showed us how to lean down, unhook the ropes which held the bottom of the canvas bag shut, and let the apples roll out. He was careful to let them roll gently, or else they would bruise.

He had one trick. He placed his apples in separate pyramid-like piles so that the bin would fill faster. (The owners, on the other hand, insisted that a full bin had apples piled way over the top since they settled with time.)

Al and his friends left soon after. They had heard that Chelan Valley, fifty miles south, had a terrific crop. We had settled into our cabin and declined an offer to join them.

It was then, as my body toughened and I got used to the routine, that I was able to appreciate the harvest.

We got up early and had breakfast as light was breaking. Then we went out into the dew-soaked grass. (Later in the season we had to wait for frozen apples to thaw.)

Ann and I placed our ladders next to each other and began circling the tree in opposite directions, talking through the branches. We took as many breaks as we wanted, and ate apples in the tall grass under the trees, watching for the poison ivy and oak that thrives there. One of the reasons we had been attracted to picking was that it seemed a way we could both work and spend time together. We met many extended families picking together, men and women, teen-agers. Children would come out to watch and play. But I didn't—that year—meet any women picking alone; they were always partners with some man. As far as our friends' stories of rape: most pickers were from Oklahoma or the Southwest and had high standards about honoring women-folk. They'd apologize for cursing in their presence.

The view from the top is one of the supreme pleasures of picking apples. No matter how I would vow that the next day I was going to pick my ass off without indulging in back-to-the-earth romanticism I could never break myself of just sitting and gazing over the trees spread out before me like a field of immense green red-dotted mushrooms. There were mountains far off, and a river snaking down the valley. When you're at the top the lightest breeze sways you as if you are at sea. The solitude, the repetition of picking, the boredom and exhaustion of the work leave the mind free floating. The flash-cards of your life turn over, thought after thought.

The cry of TRACTORRR!!!, like the sudden breaking of a branch, cuts through the meditative apple-absorption.

Screaming for the tractor is one of the secondary skills of a good fruit-tramp, like the use of Timmmmmbeeerrrr among lumber-jacks. The tractor-driver won't hear you above the roar of his engine, nor think you really need him, unless your yell is so bloodcurdling and hopeless that he thinks you will die if he doesn't move your bin.

Bins usually hold more than one tree-full of apples. If the tractor-driver doesn't move the bin along with you, from tree to tree, you end up walking back with fifty pounds of apples, an awful waste of time and energy. With one or two tractor-drivers and twenty pickers it gets frustrating. Finding an orchard with a fast, sympathetic tractor-driver can make all the difference.

We heard that the rumors of a heavy crop in Chelan had attracted so many pickers that they had cleaned out the valley in a record three weeks, and run out of work. Al's place had been taken by a group of Canadian Indians, who could cross the border and work in the States because of an old treaty which acknowledged that Indians were citizens of North America.

Solid citizens of Okanogin badmouthed Indians and fruit-tramps alike. They also raised all prices during Harvest. (There were only two food stores in town.) While complaining how much the damn Indians and fruit-tramps drank, they kept the bars open day and night.

The solid citizens had developed an effective control system. An Indian——somehow it was always an Indian——would get drunk at a downtown bar and end up stuck in jail, since he had no money to post bail. When a grower needed extra help fast he would take his pick-up into town and pay the Indian's fine. The Indian, released in custody of the grower, had to work off his debt in the grower's orchard. The cost of labor went neatly into the town's pockets.

Sometimes the racism which is the worm in apple-pie America wiggled out into full view. The foreman of one of the bigger operations told me how one night some of the boys had been drinking. They found an Indian wandering around downtown, chained him to the back of their car and dragged him around town; everybody knew it had happened; nobody said anything.

Towards the end of October the rains came. We were picking Golden Delicious now, apples so tender we wore gloves to reduce bruising. (Since they took more care we got 50 cents a bin more.) The leaves of the trees browned and curled-up. Summer had gone. There is no more intense way to feel the seasons moving across the earth.

When we had picked the last of the goldens there wasn't any decent picking left. Some days we picked wearing longjohns, sweaters, heavy gloves. But a lot of the apples were "marbles"—— so small they took forever to fill the bin. Still, we had to stay to collect our bonus—— the fifty cents a bin extra that had been withheld (or promised)—— until the end of the season.

We began to hear gun-shots in the hills surrounding the orchard. The hunters came looking for game in flourescent red vests, at the end of harvest. When we went to town we saw deer strapped to hoods, eyes wide-open. In the cafes we heard stories about hunters shooting each other, cows, horses, chickens, dogs. Two years before, in the next orchard, a picker had been killed by a hunter who had chased a bear down from the hills. The hunter had seen something move in a tree and shot at it; a picker fell dead from the tree. The hunter, a business man from Seattle, had gotten off.

Apples were in my blood. Next September I left the farm I'd been living on and got work on the nearest orchard, in upstate New York. By chance the other pickers were a group of radical Quakers who supported their community house by sending out five crews to different orchards.

We lived in a large decaying farm house——perfect for migrant blacks and hippies——as a communal unit, sharing cooking of rock-bottom macro-style food. We practiced sitting in silence before dinner——until someone spoke or sang or nothing happened and we began eating.

A dead juke-box sat in the dining-room, a relic from the year before, when a crew of migrants from Jamaica had lived there. The crew-chief had put the juke-box in to keep the men happy and add to his profit. There was also an oversized refrigerator which he'd used to sell beer. Now the music came from auto-harp and guitar. The freezer held the squash and apple cider which were our staples.

Compared to the well-managed orchards of Washington this one was disaster. The trees were so high we had to leave our thirty-foot extension ladders and climb branches an extra ten feet to reach prize apples at the top. (Trees in colder regions are larger because they need deeper roots to last winters.) Also, the orchard had not been pruned for more than a year. Unpruned apple-trees shoot out runners that go straight up; we called the orchard "the jungle."

Because the owners stored and trucked their own apples, and pressed their own cider for sale in their road-side stand, they had little time to move bins or assign trees. We were kept picking thinly-grown Macs while in a lower orchard the Red-Delicious ripened. When we complained about the poor picking they promised us we would move any day to the "good picking" down below.

Ann Anton

Suddenly the days turned into rain. Only a few of us braved the cold, climbing around in wet leaves, water splashing down our backs. The Delicious began dropping fast. You could hear them fall with a soft thud all over the orchard. The ground turned slippery with smashed apples.

From the Friends I learned of a cooperative crew called Greenleaf Harvestors, run by Arthur Harvey, in New Hampshire. Harvey was said to be an agrarian anarchist, Tolstoy-like in his vegetarianism and high morals. (No drinking, smoking dope, "un-married" sex, or recordplayers. Early to rise.)

Back in New York City I worked unloading boxes of Xtra fancy Golden Delicious down at pier 47. The apples came from the Chelan Valley. We worked all night. At six in the morning wholesalers wearing sport jackets and pork-pie hats, unlit cigars in mouth, came to buy. That winter I paid a quarter for a single Red Delicious—— which I checked carefully for thumb-size bruises—— on a stand near Avenue C.

After a year in New York I was ready for Arthur Harvey's Greenleaf Harvestors.

Working with Greenleaf was like working with a medieval guild. We had our pride. Harvey had negotiated higher rates than the surrounding migrants from Jamaica earned. The owners knew we picked faster and with less damage. We could also "spot-pick" with accuracy. Spot-picking is particularly important in New Hampshire where fancy MacIntosh are the main apple. Macs don't ripen at the same time. The ones nearest the sun redden first. If they're not picked soon enough they burn. Picking the ripe apples exposes the inner green ones to sunlight. Some trees were gone over three times. To spot-pick right is a subtle skill. An apple blood-red on a tree often turned out pale orange in hand.

Harvey had worked things out carefully. He had determined the exact size of an apple which was considered too small to pick. (And he carried a tape-measure with him in case the foreman, or another picker had a question.) He had gotten the growers to agree that if there were three or fewer apples isolated on a high branch they did not have to be picked. All the ladders were in good repair, and none of them were more than 12 feet. The trees were well-pruned. In fact, Greenleaf Harvestors had a policy of not picking any orchard that Greenleaf pruners had not worked that winter.

We had an ingenious bonus system. For every hundred bushels picked you got an extra 2¢ per bushel. This added up. There were a few "super-pickers" who cleared well over a thousand dollars for the six week season.

Every night when we came into dinner Harvey asked us how many bushels we had picked that day. He wrote the number down in a ledger. It got to us. If your number that day was low you tended to whisper your answer.

Towards the end of the season the pressure built. On the last day we all converged on a stand of trees. The two best pickers had gotten into a rivalry. We were starting to double up on trees, picking into a common bin, when we came to a good tree just as a super-picker got to it. "It's mine," said the super-picker, "I got to it first." He was close to tears, his jaw quivered. "Fuck, let him have it," someone said with heavy disgust.

Many pickers couldn't take Harvey's heavy-handed way of running things. This was fine with him; his anarchism consisted of "if you don't like the way I do it go and do it your way." Everybody learned from him––he picked apples with the essential grace of a good athlete––and at least four other crews were operating cooperatively in New England, started by dissatisfied Greenleaf alumnae.

One of the off-shoot crews was formed to pick organic apples. All commercial apples are grown with the help of huge amounts of chemicals. There are hormones to make the apples stay on the tree longer than they naturally would. There are poisons used for insect control. There are also poisons, like dieldrin, which are spread on the ground to kill mice who destroy young trees by eating a complete circle around them. (This last poison has killed horses who have strayed into pastures.)

At the tail-end of the season we still had some clean-up picking to do. It didn't count towards the bonus, so the most aggressive super-pickers left. The rest of us voted to experiment by picking as one. We kept no individual records, and picked into whatever bin was most convenient. Sometimes four or five of us picked one tree. We discovered that we picked on the average what we had under the old system. Harvey seemed mellowed. He announced that he thought the day of the super-picker was over; we were strong enough as a crew to carry the slower pickers. He also admitted that the women on the crew had picked just as well as the men.

My last year picking was a bring-down. I was living in Hartford, Connecticut, and found an orchard a half-an-hour drive away on the thruway. The Puerto Rican crew drove out every morning from the bombed-out inner-city vacuum.

The first day, in the middle of a Mac, a hand reached through the branches with a joint. We passed it around the tree. *"Verde, verde, que te quiero verde."*

The old man, el viejo, the owner, shouted at us to move. We were within reach of cheap city labor; we were paid by the hour. Two dollars. Plus 25 cents bonus if we stayed the whole season.

El viejo had planted the orchard himself thirty years ago. Even though he was half-crippled he couldn't hold himself back from climbing ladders and picking. I liked him in spite of himself. But his nastiness and low wages failed to inspire the crew. The trees, which he truly loved, suffered. Branches were broken needlessly to save a few steps, apples were knocked down. We felt no connection to land worked by the hour.

Towards the end of the season, my fourth, the hunters reappeared. High in a tree I heard two shots close by. Then two more. I couldn't tell where they were coming from. One of the pickers dropped in mime at a bullet winging over his head, only half-play. The memory of the man in Washington shot for a bear flashed my mind. I screamed to cut it out. Two guys came striding down the road, with their guns, laughing. One of those hopeless arguments began. They weren't hurting anybody and who the fuck was I? I blew up when he thrust his cold metal gun-barrel against my chest. I pushed back. A fast, furious fight. Some one pulled us apart.

We began picking up drops. This is back-breaking, messy work, scrambling on hands and knees in wet grass, mud, and squashed apples. Drops are used for cider, apple-sauce and baby-food. Even if the price for drops is too low to make them worthwhile picking up they present a problem. If they are left to rot on the ground they attract rats. Or at least, that's what the old man said. He argued that he couldn't afford to pay us by the hour now; he would pay by the bushel. And furthermore, he said, we wouldn't get our bonus (back pay from our point of view) until we had finished picking up all the drops.

It was cold and wet, into November. Most of the crew weren't making $2.00 an hour, and they considered that the season ended when all the trees were picked. The talk between the men was in a Spanish so fierce and fast that I couldn't follow it.

The next morning I arrived early and went down to the orchard. It was deserted. The bushels which had been left from the day before had been overturned, scattered, smashed during the night. The ground was slippery with fermenting apples.

I sat down under a tree in the middle of the vast empty orchard, the garden of apple-trees, which could become wild apple trees one day. I picked my breakfast; it had the sharp sweet taste that only a just-picked apple can have.

●

APPENDIX 1

Equipment

I've never heard of a grower who didn't supply picking buckets. But the buckets they supply are sometimes old, or not the right size for you. Wells & Wade make the best picking buckets. The No. 1 is $14.00. The JUMBO is "designed for the professional fruit picker of greater stamina where the added weight of fruit does not present a problem," and is $15.00. The Golden Jumbo Bucket, at $17.65, is padded inside. Less expensive are the Appeach Deluxe Picking Buckets ($10.90) and the Orchardkraft ($8.45). From:

Orchard Equipment and Supply Company
Route 116
Conway, MA 01341

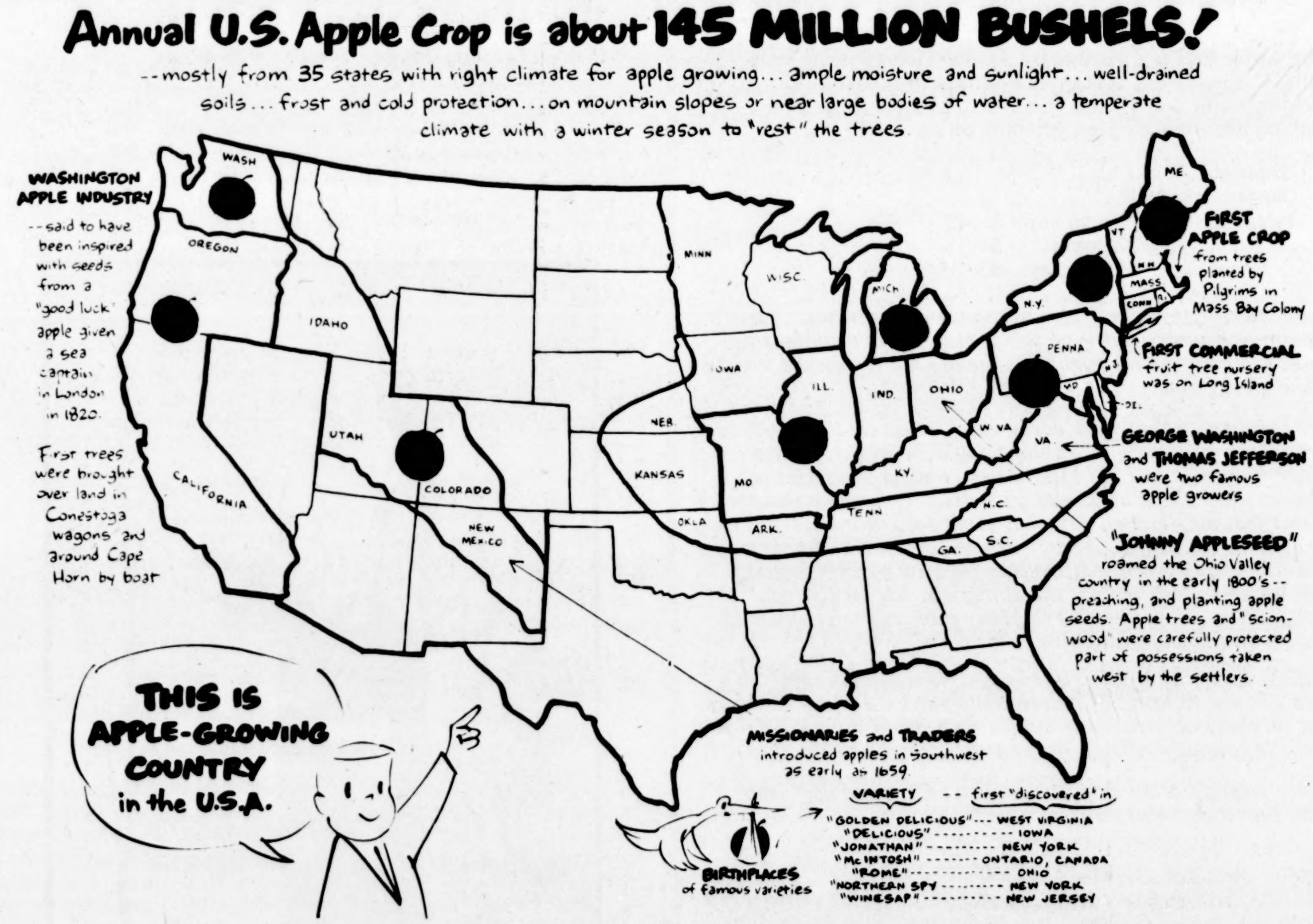
The Jumbo picking bucket holds about 50% more than the standard bucket. It is good for hard apples like Baldwins, and a strong picker can fill a box level full with each bucket load. . . The wise picker buys his own bucket. Then he can control its adjustments and repair to his liking. ——**The Apple Picker's Manual** by Arthur Harvey.

APPENDIX 2

Equipment

Ladders are supplied by the grower. If you get to the point where you want your own——one that fits your size and style——get in touch with Stan McCumber, who makes ladders from spruce and oak, and charges by the foot. I think wooden ladders are better than aluminum ladders, which get slippery when wet and are too light to use when it's windy. *Wooden ladders should not be left overnight on the ground, but should be stood up, under cover if convenient. This will reduce the weight of moisture absorbed in the wood.* ——**The Apple Picker's Manual** by Arthur Harvey.

I make apple picking ladders from spruce and oak trees—— spruce for the rails, oak for the rungs. I gather the spruce in the spring, strip off the bark, cutt off the knots, cut the spruce tree in half, dry and shave the rails, drill the rung holes, split and shave the rungs, and secure rungs with nails. I do the whole process without power tools except for cutting the spruce trees in half which is done with a gasoline powered saw rig.


Annual U.S. Apple Crop is about 145 MILLION BUSHELS!
--mostly from 35 states with right climate for apple growing... ample moisture and sunlight... well-drained soils... frost and cold protection... on mountain slopes or near large bodies of water... a temperate climate with a winter season to "rest" the trees
WASHINGTON APPLE INDUSTRY --said to have been inspired with seeds from a "good luck" apple given a sea captain in London in 1820.
First trees were brought over land in Conestoga wagons and around Cape Horn by boat
WASH
OREGON
IDAHO
CALIFORNIA
UTAH
COLORADO
NEW MEXICO
MINN
IOWA
NEB.
KANSAS
OKLA
MO
ARK.
WISC.
MICH
ILL.
IND.
OHIO
KY.
TENN
W. VA
VA.
N.C.
S.C.
GA.
PENNA
MD
DEL.
N.J.
N.Y.
VT
N.H.
MASS.
CONN
R.I.
ME
FIRST APPLE CROP from trees planted by Pilgrims in Mass. Bay Colony
FIRST COMMERCIAL fruit tree nursery was on Long Island
GEORGE WASHINGTON and THOMAS JEFFERSON were two famous apple growers
"JOHNNY APPLESEED" roamed the Ohio Valley country in the early 1800's -- preaching, and planting apple seeds. Apple trees and "Scion-wood" were carefully protected part of possessions taken west by the settlers.
MISSIONARIES and TRADERS introduced apples in Southwest as early as 1659.
THIS IS APPLE-GROWING COUNTRY in the U.S.A.
BIRTHPLACES of famous varieties
VARIETY -- first "discovered" in
"GOLDEN DELICIOUS" --- WEST VIRGINIA
"DELICIOUS" ---------- IOWA
"JONATHAN" --------- NEW YORK
"McINTOSH" ------- ONTARIO, CANADA
"ROME" ------------- OHIO
"NORTHERN SPY -------- NEW YORK
"WINESAP" ---------- NEW JERSEY

MAJOR PRODUCING AREAS

The major apple-producing states are shown below. The bushel figures are average for a good, "normal" crop. The leading varieties are also indicated.

WASHINGTON — About 35,000,000 bushels, and increasing. Leading varieties (including red "Sports") — Delicious, Golden Delicious, and Winesap.

THE APPALACHIAN AREA — (Virginia, Pennsylvania, West Virginia, Maryland, and Delaware) — 30,000,000 bushels. Leading varieties — York Imperial, Delicious, Stayman, Rome, Golden Delicious, Jonathan, and Winesap.

NEW YORK — 22,000,000 bushels. Leading varieties — McIntosh, R. I. Greening, Delicious, Cortland, Rome, Baldwin, Northern Spy and Golden Delicious.

MICHIGAN — 16,000,000 bushels. Leading varieties — Jonathan, McIntosh, Delicious, Northern Spy, Golden Delicious and Rome.

CALIFORNIA — 11,000,000 bushels. Leading varieties — Yellow Newtown, Gravenstein, Delicious, Rome, Golden Delicious and Jonathan.

NEW ENGLAND — 10,000,000 bushels. Leading varieties — McIntosh, Cortland, Delicious, Golden Delicious, Baldwin and Northern Spy.

OHIO, INDIANA AND ILLINOIS — 8,000,000 bushels. Leading varieties — Jonathan, Rome, Golden Delicious, Stayman and Delicious.

NEW JERSEY — 3,000,000 bushels. Leading varieties — Rome, Delicious, Stayman, and Starr (summer apple).

NORTH CAROLINA — Over 6,000,000 bushels and increasing. Leading varieties — Delicious, Rome, Stayman, and Golden Delicious.

OREGON — 2,500,000 bushels. Leading varieties — Yellow Newtown, Delicious, and Golden Delicious.

IDAHO AND COLORADO — 4,000,000 bushels. Leading varieties — Delicious, Rome, Jonathan, and Winesap.

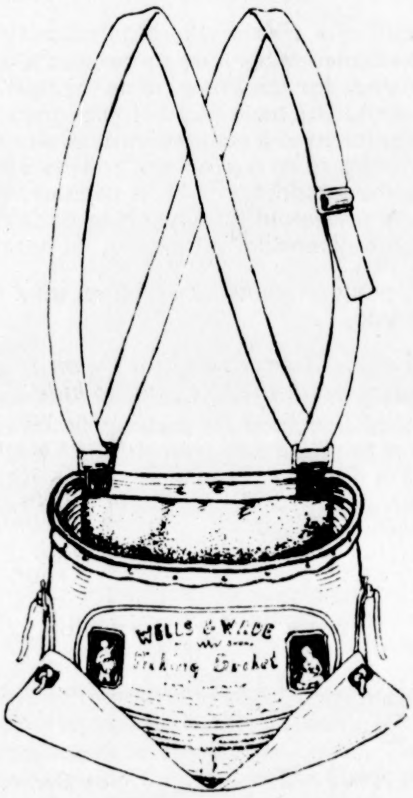
Other states, equally important, but producing smaller volumes, include: Wisconsin, Minnesota, Missouri, Kentucky, South Carolina, Georgia, Utah, New Mexico, and several others.

I make two styles of ladders, open topped and pointed. The maximum length of ladders I make is twenty feet. The ladders cost $1.65 per foot. Thus, for example, an 18' ladder costs $29.70.

Everything I learned about making ladders came from David Sawyer, a neighbor, who makes a variety of wooden products including superior quality ladder back chairs, all from native oak and hickory.

The supply of ladders is limited. Total production last year was twenty six ladders. But I want to spend up to two months a year producing about 100 of 'em. So far I have sold the ladders to orchardists near where I live. Delivery is a problem. I can truck them just about anywhere in souther N.H. (for a modest fee) around Sept. 5-10th. I don't know if the ladders could be sent by truck or rail. Of course a person could always come pick his or her ladder up personally.

Apples for Health,
Stan McCumber
Quaker City
Charlestown NH 03603



APPENDIX 3

How to

The Apple Picker's Manual by Arthur Harvey is the only thing I've ever read that gives essential information on picking faster and better. It is worth at least three year's picking experience. Even veterans will learn. From:

Greenleaf Books
Canterbury, NH

Prices postpaid:		
	single copy	$ .45
	3 copies	$1
	10 copies	$3

Color picking is easier if you put yourself in the position of the sun as it would shine on the apples. Direct sunlight produces red color. You might not see the red if you are standing in the wrong place.

The temperature can very easily rise 50 degrees in a few hours during harvest season. Clothing should be adjustable for frosty mornings and hot afternoons. I wear overshoes or rubbers when the grass is wet with dew. Otherwise the misery of wet feet may last all day. On some cold mornings you may find gloves will help. Gloves will slow you down, but it may be better than stopping altogether because of stiff fingers. Have three or four pairs if the apples are wet so you can change them when necessary. Many pickers prefer shoes of cloth with thick rubber soles.

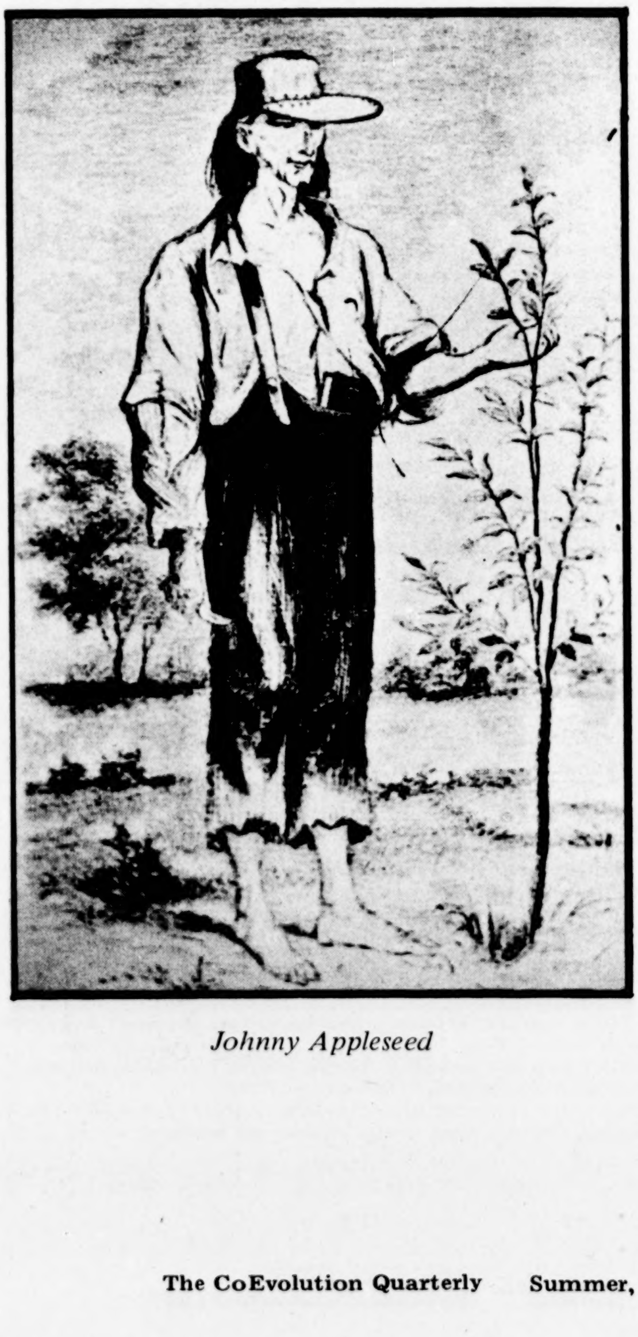
If the ladder slips under your weight, it is usually safest to hold on, not to jump off. Eventually the ladder will come to rest on some other branch, if you have made it your habit to point it generally toward the center of the tree.

Don't wear a hat while picking. You will spend half your time catching it and putting it back on.

APPENDIX 5

Where & When

Most apples are harvested from mid-September to late October, and early November. Summer and early fall varieties are harvested as early as mid-July. There is about a three week difference in harvest dates between the earliest (more southern areas) and the later areas.



Johnny Appleseed

Washington is the major apple producing state. Living conditions are regulated by the state, and are good. Pay is also high. But so is the competition. It might be good to work locally, or on one of the cooperative crews before going to Washington.

There are 35 commercial producing states. Check your state employment office for the orchards nearest home. Also, ask at roadside stands. The main season begins mid-September. Try to locate an orchard a few weeks before then. A bonus system, which adds from twenty-five to fifty cents a bin, if you complete the season, is common practice. Be prepared to stay until the first week in November. Piece-work is the rule, hourly wages the exception.

There are two groups I know of which set up all the details of picking for you.

Greenleaf Harvestors (see above) *don't want to work with those who disagree with the rules and so hide their feelings and activities. For example, we don't want you on the crew if smoking grass is so much a part of your life style that you're unwilling to give it up for the season. . . . We ask that each person agree to accept the crew assignment, to stay the full season until October 27, work 45 hours per week, observe the 10 PM bedtime, and refrain from alcohol, drugs and non-marital sex.* It is actually not as grim as it sounds; you're usually too tired anyhow; and Arthur Harvey is one of the top apple picking teachers. For information write:

Arthur Harvey
Greenleaf Harvesters
South Acworth, N.H.

Another cooperative group is run by New Swarthmoor, a Quaker community. They have a number of crews. An experimental and open lifestyle, within the Quaker context. They tried an all-women's crew last year. For $1.00 you can receive **Applevaluation**, a newsletter which is made up of reports from the different crews about conditions, wages, social security, and a little "applesophy," as they call it; for example, *We have some important delusions about ourselves, namely, that: applepicking is a spiritual way to earn a living;— — we are good people, for we earn our living nonviolently;— — we are progressive leaders, for applepicking, & simplicity, is a significant way of getting people outside of the death system. . .* Crews are open to people who are not Quakers. From:

Applepicking/Louisa Stark
19720 Waterloo Rd.
Chelsea, MI 48118

If you don't live near an orchard, either the Greenleaf Harvestors or the New Swathmoor crews are a good place to begin. Greenleaf is heavier on organization, New Swathmoor on "your own thing."

APPENDIX 7

Johnny Appleseed

Johnny Appleseed was born John Chapman 200 years ago this September 26. He not only planted trees, but was also a Swedenborgian visionary, an early radical ecologist. He went barefoot, was apparently vegetarian, regretted killing a rattlesnake in a moment of self-defense. Best biography is **Johnny Appleseed: Man and Myth**, by Robert Price, 1967.

John Chapman came here long before 1838; a pioneer of Fort Wayne fixes the date as early as 1825. Certain it is that in 1830 he was seen one Autumn day— —seated in a section of a hollow tree he had improvised as a boat, and filled with apple seeds— —paddling up the Maumee River, and landing at Wayne's fort, at the foot of Main Street, Fort Wayne. . . His boat was daubbed with mud and tree moss— —quite in keeping with his rough garb and untidy appearance. . . In the Autumn of 1838 I saw his nursery of 15,000 trees, 10 or 11 miles from Fort Wayne,— —trees he'd planted at least 5 or 8 years before.
— — Fort Wayne **SENTINAL**, October 21, 1871

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H2O
SUN SHOWER

Sun Shower

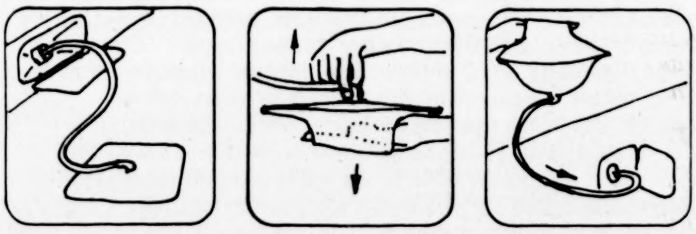
Fill this vinyl bag with 10 qts. of unheated (70° water, set it in the afternoon sun with the clear side up and the black side underneath, and in three hours treat yourself (and a friend) to a hot (95° plus) shower. The Sun Shower includes a shower head, clip on/off valve, and a heat sensor that changes color when the water has reached 90 degrees— —well designed and well made.

Obviously a dandy item for campers and sailors, at 10 ozs., it qualifies as a "luxury" backpacking item.

—AF

Simple Siphon

Easy to use, just:



① INSERT HOSE IN TANK. EXPEL ALL AIR FROM BAG

② QUICKLY SEPARATE SIDES OF BAG TO START FLOW

③ EMPTY FULL BAG INTO OTHER VEHICLE

This 1½ gallon urethane bag creates its own suction when the sides are pulled apart, so you can siphon liquids regardless of the relative positions of the source/receiver. It is not made for long-term storage or long-distance transport of gasoline (the manufacturers have purposely omitted a shut-off valve on the hose) but it neatly accomplishes the otherwise impossible and dangerous task of trying to siphon gas from one vehicle to another along the side of a highway teeming with traffic. Folds compactly, and comes with a "HELP" sign for your radio antenna.

—AF

Sun Shower
$6.95 postpaid
from:
Basic Designs Inc.
3000 Bridgeway
Sausalito CA 94965

Simple Siphon
$4.95 postpaid
from:
Basic Designs Inc.
3000 Bridgeway
Sausalito CA 94965

Communications

GOLD does not glitter

This isn't a review on Browne's **You Can Profit From a Monetary Crisis**, it's more a personal commentary. I don't think the book should be reviewed; it's not too useful.

Starting with the title. It sounds a little like an early 1960's book that might have been called "Build a Bomb Shelter and Be The King of Your Block When the Bomb Falls." With the kind of monetary crisis he's talking about, financial *survival* for an individual is a better goal than "profit." The major monetary crises that I have studied are German's post WWI runaway inflation caused by the government issuing bonds to pay off the Allied War imposed financial settlement, the Chinese runaway inflation that occurred at the end of Chiangs regime as Mao got his revolution going, Argentina's runaway printing press government (deliberate form of taxation), our very own Great Depression and deflation, as well as the countless money market panics of the 19th century.

In virtually all the cases I can think of, Browne's advice would not be particularly useful. In the most common cases where the inflation was limited to a particular country (China, Chile, Germany, etc.) simply putting your assets in some *other* country's currency would have worked just as well or better. In the few instances where the crisis was international in scope we have no evidence to guide us, since these occurred at times when governments were active in the gold and silver markets and effectively blocked speculators; perversely, in the case of the U.S. in the 1930-32 crises, gold was a bad choice because of the deflation that occurred.

Pre-WWII history does not confirm Mr. Browne's "hold Gold" hypothesis, to my knowledge, and the Post War period, with a brief exception, contradicts him. The price of gold has remained constant in the U.S. up until 1972 and all through the years prior to that time 'gold bugs' were predicting panic and the need to hold gold. The earlier in the past 30 years that someone bought gold (gold certificates were still legal until 1960) the *more* they lost because they earned NO return until 1972. The exception would have been someone who bought gold more recently than 1958. Gold has now quadrupled in price; yielding 10% return if held since 1960.

I prefer to look at the issue of Monetary Crisis without reference to Browne. He is to contemporary economics what a phrenologist (reading bumps on the skull) is to a brain surgeon. Economics today is econometrics, using simultaneous equations modelled on computers to test hypotheses; contemporary investment theory is pure probability. Commonsense homilies like "don't expect to buy at the bottom of the market" are nonsense; homilies are as useful as a "system" on a slot machine.

I see two considerations at this point in time. The first is that we are in a totally new period in the history of money. Gold will no longer play a role in international exchange and this is all for the better. Gold acted as a communicator of adversity, spreading depressions; just as banks before the Federal Reserve and FDIC in the 19th century spread monetary panic. How long it will be before a pooled currency substitute will evolve or before an international body establishes some new monetary trade basis I don't know, but when it does Gold will only be worth what the demand for it in industrial and luxury circles will generate.

In the meantime we must deal with the second consideration; if we anticipate a long period of high, world wide inflation, what can we do? Gold is just one of many desireable non-monetary goods that is marketable; which is what one wants. Other such goods are cases of Johnny Walker Red Label, quality wines, medicines, famous paintings, copper, etc. In terms of which one is *best* to hold, the considerations are: (1) storage costs (2) which ones do *you* know to be the most marketable. This last answer is related to the First Law of Money, the investment should be in the field that you know best. If you know weaving, choose the most expensive, rarest, most marketable dye ingredient; if you are a book collector buy rare books that will retain or increase their value, etc.

If, after looking at the non-monetary goods you know best, you still feel that gold is preferrable because of its low storage cost, then add into your considerations that it is illegal to own. This illegality is not like smoking a joint among friends, it's more like carrying a couple of lids across the border from Mexico (Browne really obscures this issue. . . Gold is the currency among international dope dealers. If you're going to be illegal, do it right. Buy the hot dope dealer gold which sells nearly everywhere at a 10-15% discount ($30 less than the world gold price); buy it and have it melted into a nice mold, call it art, and have something to look at.)

Whatever you do, don't take Browne's advice on silver as a crisis investment. Silver is a by-product of other metals being mined and anyone who doesn't have a knowledge of the technology involved as well as the incredibly erratic history of silver prices must be insane to forecast its future.

The last thing to note, if you prefer gold over other things you *know* but hesitate to buy gold because of the legal threat, Browne's recommendation to avoid gold mining stocks is good and his warning that gold coins are highly inflated with numismatic value are accurate.

As for Browne's advice to buy a country house for a secluded escape in a crisis, where you would have to shoot your neighbors and invading hordes, I'll take a sail boat and distillation equipment.

—Michael Phillips
San Francisco

P.S. Swiss franc inflation last year was 11.3% compared to 8.8% for U.S. dollar.

Apocalyptic Financing

Having discredited 'gold bugs' (see above), we should mention one who looks not too bad on analyzing the current economic throes and woes and what to do about them. For a test, let's see how his predictions for '74—made in January '74—work out.

—SB

René Baxter Letter
$75 / yr (bi-weekly)

from:
René Baxter
4045 East Palm Lane, Suite 3
Phoenix, AZ 85008

1974 PREDICTIONS

Here are my predictions for 1974:

1. Nixon will step down. His ability to clear himself of complicity is remote. Democrats now have the opportunity for

a clean sweep, removing both Nixon and Agnew, and a virtual certainty in 1976.

2. The Dow Jones Industrial average (DJI) will fall another 150 points to below 700. The 1974 high will be about 900, during the first quarter.
3. Gold will explode amid a new dollar crisis to over $175 per ounce, possibly as high as $200.
4. Gold will be legalized for U.S. citizens after a new "official" price in the area of $200 is announced. More about the effects of this elsewhere in this issue.
5. Unemployment, now about 4½%, will more than double. Hardest hit will be heavy industry, especially autos, steel, aluminum, paints, plastics and construction.
6. The fuel crisis will deepen as the Arab states harden their demands against Israel's supporters. We will abandon Israel's interests in favor of our own. We will have gas rationing.
7. Mass transit will become a "national goal" (i.e., a fad) as pollution was in 1973. Highway building will stop and trust funds will be appropriated for expansion of public transportation. Nationalization is not far off for all common carriers. Amtrak was the beginning.
8. Interest rates will be forced down perhaps 2 points, then return to a very persistent 10%. The housing market will be very depressed.
9. Silver will exceed $4.50 per ounce, possibly reaching $5.
10. The cost of living, often confused with inflation (which is simply currency debasement) will be up 10% according to government figures. Real rise will be double that.
11. Sweeping tax reforms will be pushed through Congress eliminating most deductions and simplifying the average tax return. Taxes will be much higher after the dust settles.
12. We will have a new domestic currency—the "redback." Our present currency will become gold-convertible and for external (foreign) use only.

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(We had some LWEC's done, to use them as reference material in the store. One guy came in looking for a copy, and he bought one of the converted ones for $9.00 rather than wait till we had more plain ones. Pointing out that the update was due out soon had no effect whatsoever. What's going on? !)

—Rick
Terra Facts
809 N. Gulf Blvd.
Freeport, TX 77541

Hertzberg—New Method
Vandalia Rd.
Jacksonville, IL 62652

Just remembered that H-NM sell sets of paperbacks by subjects (Sociology, Black History, etc.), all bound up into the hard covers. Though their market is the library, you can get a catalog and ask if they will sell single titles from among those already bound. You might save time and not have to buy a minimum number.

Cassette Rave

I've been tape recording with cassettes for seven years, now, and without going into a long speal as to how valuble a "tool" they are, I'd like to say something about one brand in particular: Maxell Casettes. Over the years I've experimented with dozens of cassette brands and makes including all the "biggies" TDK, Basf, Scotch, Ampex, Sony, etc. None of these brands approach the performance I get out of Maxells. Maxell manufactures two types of cassette (as opposed to some companies six) the Maxell LN and the Maxell UD. I own thirty "LN'S" and not one has jammed fouled or self distructed. No other type of cassette I've used is that dependable. But along with their great sound and dependability their true charm is their price. I buy mine singly. Retail price at $2.30 for a C-90 (90 minutes of recording time) their "UD" is more expensive at $3.75. But if a company puts so much quality into their cheap model their more expensive make must be that much better. I repeat their cheap Maxell LN out performs all makes mentioned above (except the UD) whoose prices, for a C-90, average from $3.00 to $4.00. Even out does the top-line TDK ED which sells for twice as much. Maxell is not a big name up here in Winnipeg. They only have 3 outlets compared to some copmanies 20 or 30. Recently, Maxell have upgraded both models, at no additional cost. I've used them to record everything from Stravinsky to Stachausen. They're particularly good for horns which makes them real fine for jazz. As far as I'm concerned Maxell cassettes are the best buys in tapes. Hope I've been of service to you Yankees.

—Abysinnia
Mark P. Menlove
Winnipeg, Canada

Cheapo Electronic Music

Walter Carlos in his article for the L.W.E.C. talked about all the fancy gear you can buy to make electronic music on, if you have the money. Then he mentioned the Heathkit oscillators and Viking tape recorders he started with. Well, I'm in the spot he was in then, and I suspect a lot of other people are, too. Therefor, I'd like to call to your attention the latest of what Carlos dismisses as "wonder toys:" the 2720 and 4700 synthesizer kits made by PAIA Electronics.*

The high-class synthesizers (Moog, Buchla, ARP) are designed to meet high standards of stability, linearity, and so on, as well as can be done in more-or-less mass-production equipment. This over-design means that only institutions or professionals like Carlos can afford the damn things. The rest of us have to find a way to go cheap, or stay home.

The modules in the PAIA machines perform the same functions as their high-priced cousins. Within their limitations, they can make many of the same sounds, or as nearly the same as much more responsive and powerful than the home-brew tonebox I used for my first tape— which, incidentally, beat several synthesizer tapes in a contest a couple of years ago. I'm sorry that sounds like drum-beating; all I'm trying to say is that ALL IT TAKES TO MAKE ELECTRONIC MUSIC IS A TONE BOX, TWO TAPE MACHINES, AND STUBBORNNESS.

The PAIA people say that anybody who knows which end of a soldering iron to hold can assemble their kits. I'd say that's a trifle optimistic, having had to mooch around a bit to make mine work. If you decide to go this route, you'll need to heed Carlos' advice about getting involved in the why's and how's of the things. Come to think of it, that's true of most creative activities, ain't it?

The current PAIA catalog lists a whole bunch of individually-priced modules (VCO's, VCA's, VCF's, function generators, balanced modulator— even a bitty sequencer), and several packages for making up "complete" (a rhetorical expression in this business!) synthesizers, from $139 to $255. For $1 they'll send you a booklet, **Using the PAIA 2720 Synthesizer.**

Yours truly,
Allen Watson III
San Francisco, CA

* PAIA Electronics Inc.
P.O. Box 14359
Oklahoma City, OK 73114

BOOKMAKING ACCESS

BY ROBIN RYCRAFT

4205 South West 53 Avenue
Corvallis, Oregon 97330

This list of names and organizations is prepared for those interested in how and why books are made. In considering use and accessibility, many titles and names are omitted. They may be found in the bibliography of these same books.

BIBLIOGRAPHY
(4-74)

Papermaking
Library of Congress, Information Office, Washington, D.C. 20540
1968 $3.00
Historical approach. Focus mainly on American tradition and development.

Paper
Quintion Fiore
Tamarind Institute, University of New Mexico
108 Cornell Avenue S.E., Albuquerque, NM 87106 $1.50
Covers both Eastern and Western tradition as well as explaining the art of watermarks

Writing, Illuminating, and Lettering
Edward Johnston
Pitman and Sons $10.75
The art and craft of writing with an edged pen

Cleaning and Preserving Bindings and Related Materials
Carolyn Horton
American Library Association $5.00
A practical approach for any librarian who needs to confront the physical problems of books. Insight for those who know little about these problems.

The Restoration of Leather Bindings
Bernard Middleton
American Library Association $10.00
Technical approach to restoration and conservation work. Good introduction on physical evolution of the book. Relates change of form to use.

Bookbinding and the Care of Books
Douglas Cockerell
Pitman and Sons $10.00
Traditional "English" approach to fine binding. Good reference but difficult for the beginner without guidance.

Creative Bookbinding
Pauline Johnson
University of Washington Press, Seattle, WA $12.00
This work was written with the teacher in mind. There are many simple projects for the classroom. Deals with historical binding methods as well.

Bookbinding as a School Subject
Douglas Cockerell
TALAS $ .75

Three Methods of Marbling
Dryad Press
TALAS $ .50

Printing It
Clifford Burke 1972
Book People
2940 7th St.
Berkeley CA 94710 $2.95
How to get the message to the people. . . and more.

Bookbinding, Its Background and Technique
Edith Diehl
Kennikat Press, Inc.
90 South Bayles Avenue, Box 270
Port Washington, NY 11050 $27.50
Two volumes: One on history, Two on technique. Good if you can afford it. Try your library.

Decorated Bookpapers
Rosamond Loring
Department of Printing and Graphic Arts,
The Houghton Library
Harvard University
Cambridge, MA 02138 $5.00
One of the many crafts related to bookbinding. Excellent. Third Edition.

The Story of Printing and Bookmaking
Douglas C. McMurtrie
Oxford University Press
200 Madison Avenue, New York, NY 10016 $17.50
Mainly historical. Try the library for this one.

The History of English Craft Bookbinding Technique
Bernard Middleton
Hafner Publishing Company
866 Third Avenue, New York, NY 10022
The history of technique in bookbinding.

The Art of the Printed Book 1455-1955
The Pierpont Morgan Library 1973
29 East 36th Street, New York, NY 10016 $22.50
An Elegant book. Excellent text and reproductions.

The Arts and Craft Movement in America 1876-1916
Robert Judson Clark
Princeton University Press
Princeton, NJ 08540 about $7.50
Book production in America. Excellent.

The History of Bookbinding 525-1950
Dorothy Miner
The Walters Art Gallery
600 North Charles Street
Baltimore, MD 21201
Good black and white reproductions of fine bindings, gold tooling.

MATERIALS AND EQUIPMENT
(4-74)

TALAS
104 Fifth Avenue
New York, NY 10011
Excellent supply source. Deals with professionals and amateurs alike. Prices a bit high but everything is available for immediate shipment. Any quantity. Has good selection of books on bookbinding, restoration. Catalogue, $1.00.

Nevins Bookcrafts
2622 West 7th Street
Los Angeles, CA 90057
Another source for the beginner. Reportedly good. Personal help.

The Designer Bookbinders' Directory
Designer Bookbinders
12 Cornwall Mansions
33 Kensington Court
London W8 5BG $7.50
This directory has many valuable addresses. Excellent for any resource library. The first of its kind for bookbinders. (For immediate needs, TALAS is the better source.)

PAPER

Aiko's Art Materials Import
714 N. Wabash Avenue
Chicago, IL 60611
Japanese handmade paper and various art supplies. Ask for catalogue, about $3.50.

Andrews-Nelson-Whitehead
31-10 48th Avenue
Long Island City, New York 11101
European handmade and mouldmade papers. Catalogue about $3.00. Minimum order - $25.00.

Peggy Rycraft
4205 S. W. 53rd Avenue
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Marbled paper. Samples on request ($1.50). Sheet size, 20" X 26". On paper in stock, $3.00 per sheet.

BOOKBINDING ORGANIZATIONS

The Handbookbinders of California
P.O. Box 99434
San Francisco, California 94109
Membership: $10.00 yearly

Guild of Bookworkers
1059 Third Avenue
New York, New York 10021
Membership: $30.00 Yearly
Publish quarterly journal.

DEALERS IN OUT-OF-PRINT BOOKS

The following book sellers taken from the **American Book Trade Directory** deal in old and out-of-print books. Also, most of them have indicated a willingness to search beyond their stocks in the out-of-print trade in general. This list is submitted for your convenience only and does not constitute a recommendation.

Albion Book Shop
1319 F St., N.W.
Room 108
Washington, D.C. 20004
783-6698

Barnes and Noble, Inc.
105 Fifth Avenue
New York, NY 10003

Capitol Hill Bookshop
525 Constitution Ave, NE
Washington, D.C. 20002
547-1121

Classic Book Shop
1515 Broadway
Detroit, MI 48226

Dauber and Pine
66 Fifth Avenue
New York, NY 10011

Estate Book Sales
1724 H St, NW
Washington, DC 20006
298-7355

Goodspeed's Book Shop, Inc.
18 Beacon St.
Boston, MA 02108

International Bookfinders
Box 3003, Olympic Station
Beverly Hills, CA
90212

Peter Keisogloff, Books
53 The Old Arcade
Cleveland, OH 44114

Kroch's and Brentano's
29 S. Wabash Avenue
Chicago, IL 60603

George S. MacManus Co.
1317 Irving St.
Philadelphia, PA 19107

Park Book Shop
617 F St, NW
Washington, DC 20004
628-9618

H. B. Pedersen and Company
Box 116
Old Chelsea Station
New York, NY 10011

The Seven Bookhunters
Box 22
Old Chelsea Station
New York, NY 10011

A source for new publications on subject matter relating and/or demonstrating quality book making. (Current April 1974).

The American Philosophical Society
104 South Fifth Street
Philadelphia, PA 19106
Ask for publications in print.

Bibliographical Society of America
P.O. Box 397 Grand Central Station
New York, NY 10016
Quarterly Journal

David R. Godine, Publisher
282 Newton Street
The Barn
Brookline, MA 02146

Department of Printing and Graphic Arts
The Houghton Library
Harvard University
Cambridge, MA 02138

Paper Conservation News
15 Broadway
New Haven, CT 06511
Quarterly abstract on recent developments in conservation and restoration.

The Perishable Press Ltd.
Mount Horeb, WI 53572
Private press of unusual quality

The Pierpont Morgan Library
29 East 36th St.
New York, NY 10016
Publications and slides on rare books and manuscripts.

The Walters Art Gallery
600 North Charles St.
Baltimore, MD 21201

Publications Office
Yale University Library
Box 1603 A, Yale Station
New Haven, CT 06520

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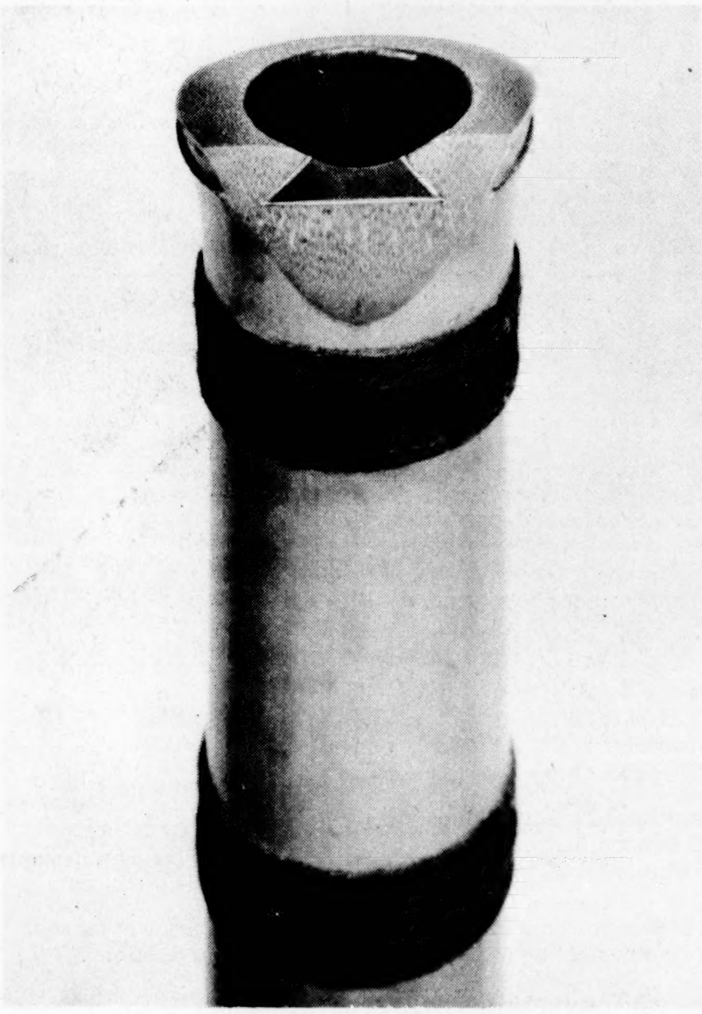


Making and Playing the Shakuhachi

BY MONTY H. LEVENSON

P.O. Box 294
Willits, CA 95490

Dear Folks:

So glad to hear you are going to be back in circulation, and thanks for your letter inviting me to participate in the **Epilog.** In addition to telling you about the books I've written there are some bits of information about the shakuhachi and about bamboo, in general, which I would like to pass along.

It's sort of difficult to know where to begin. The response to my letter on the Japanese shakuhachi flute in the **Last Whole Earth Catalog** was phenomenal. People really got off to this flute, an instrument whose popularity peaked some three-hundred years ago among itinerant Buddhist priests and samurai warriors. It all seems very strange, but perhaps not; the beauty and simplicity of this bamboo flute convey a spirit which is still very much alive in this country. Whatever the case, the shakuhachi has changed my life (and I often wonder how it has reached out to others). For the past three years I have been very much involved in the craft and the music. Thanks to the energy that has been funnelled through the **Catalog** my efforts have been given a tremendous impetus; I am grateful for the opportunity to turn others on to a beautiful thing.

Many of the folks who wrote to me expressed an interest in learning how to construct this instrument. Some were able to come by and visit my shop; most, however, lived too far away. When I got tired of writing ten-page letters I decided to publish a little "how to" book on the subject. **The Japanese Shakuhachi: Notes on the Craft and Construction** contains just about everything I know about making these flutes. It is the first book of its kind written in English. 24-pages long, it is oriented to people who have never seen, much less played, a shakuhachi. The book covers all aspects of the craft: selecting bamboo, where to get it, working the bore of the flute, tuning it properly, fashioning and inlaying the mouthpiece, lacquering the inside, binding to prevent splitting, and even repairing damaged instruments. I included several diagrams for the sake of clarity as well as a source listing of Japanese and other tools (American tools are murder on bamboo). The price of the book is $2.00 plus 25¢ for first-class delivery.

The flutes I make are divided into 4 price categories: $10.00, $15.00, $25.00 and $35.00. ($2.00 should be enclosed with all orders to cover the costs of shipping, insurance, and handling. For AIR MAIL and delivery to foreign countries please add $3.50). The differences in price reflect several factors. It is my feeling that the quality of a shakuhachi is determined largely by the quality of bamboo that is employed. Dense, heavy, thick-walled bamboo is preferred as it contributes to the mellowness and sensitivity of the shakuhachi. Thinner-walled flutes tend to have a "harder" sound and a slightly more resonant tone which is by no means unmellow. The distinctions are subtle. Thick-walled flutes are made of segments cut closest to the root of the bamboo plant and, thus, more generally resemble "authentic" Japanese shakuhachis. All of the instruments I make have a range of two full octaves plus a few notes. In this regard the skill of the player is of paramount importance. $25.00 flutes are inlaid at the blowing edge with ebony or water-buffalo horn in the traditional style. Inlaying preserves the blowing edge after years of playing. $35.00 flutes, in addition to being inlaid, are lacquered inside to a glass-like finish. Lacquering the bore contributes greatly to the overall sensitivity of the shakuhachi making the upper registers more easily played. All of the flutes I make are thoroughly reamed; all are oiled and bound with linen-nylon thread to prevent the possibility of splitting; all are accurately tuned and are accompanied with notes on playing and care. Available on special order are my finest quality shakuhachis the inlay of which is boarded with a fine strip of sterling silver, in the traditional manner. These flutes are $50.00. Cases for any of the shakuhachis I make are custom-made of velvet material, are lined and cushioned at the tip to protect the blowing edge: $5.00.

Many of the people who acquired flutes from me or picked up a shakuhachi in Japan wanted to know more about the traditional music and notation. This instrument has a highly-developed classical tradition which dates back hundreds of years. Thre is very little written information on the subject, however, as the mode of instruction for the shakuhachi in Japan proceeds from generation to generation on a person-to-person level. The student learns directly from his sensei rather than from books or documents. In addition, the history of the shakuhachi and its music is characterized by an unusual degree of intrigue and clannishness. The formal schools of music are organized around class and family lines; allegiance to the ryu or school is strictly enforced. While typical of Japanese social organization, the result of this clannishness is manifested in a sparseness of information accessible to the outsider. It is no accident that the shakuhachi is surrounded by an aura of mystery.

Over the years of my involvement with this instrument I have managed to gather a good deal of information on the traditional music which is not readily available. With the permission of some authorities on the subject and with the help of friends fluent in both Japanese and English I have managed to distill this information into what, I trust, is a palatable form. **The Japanese Shakuhachi Flute: A Guide to the Traditional Music and Notation** attempts to give the beginner just a bit of light in his gropings in the dark. The book covers the following material: The background of the shakuhachi, its origins and history, types and schools of music, construction and determination of quality, as well as hints on caring for the instrument; methods of playing, including notes on proper breathing techniques, posture, lip positioning, and the importance of listening; techniques employed in the traditional music and an analysis of the notation used by one of the major schools. Also included are a fingering chart illustrating the positions for all the notes played on the shakuhachi, a bibliography and annotated discography, as well as samples of the music itself. The volume is 38-pages long and sells for $3.00 plus 25¢ for first-class delivery.

About a year after the publication of the **Catalog** I began receiving letters from Japan. This was the first contact I ever had with people who had intimate contact with the shakuhachi and its tradition. The correspondence carried on over the last two years has provided me with invaluable sources of information on traditional techniques employed in both making and playing the shakuhachi, as well as with tools, difficult to acquire root bamboo, and a mound of inspiration. Two of the individuals I correspond with managed to make their way to the U.S. and were kind enough to share their experience and knowledge of the shakuhachi with me. One of these folks has been apprenticed to a master craftsman in Osaka for four years. The other is a student of Kikusui Kofu, one of the most esteemed teachers of the shakuhachi in all of Japan. From these individuals and others involved with the classical tradition I learned that old ways are rapidly passing. Old masters, few in number even at the peak of this instruments popularity, are dying and the young are too infatuated with the ways of the West to concern themselves with the past. Plastics and mass-production have made their way into the craft process. (I priced a plastic flute at $35.00 some time ago in San Francisco.) In light of this situation it is heartening to witness such interest in the shakuhachi here in the U.S. Concerts and recordings of traditional music appear to be in greater evidence, and there are a number of fine teachers on the West Coast (S.F., L.A., Seattle, Berkeley, and Vancouver to my knowledge) and in Hawaii. Each year Wesleyan University in Middletown, Conn. has a master musician from Japan in residence.

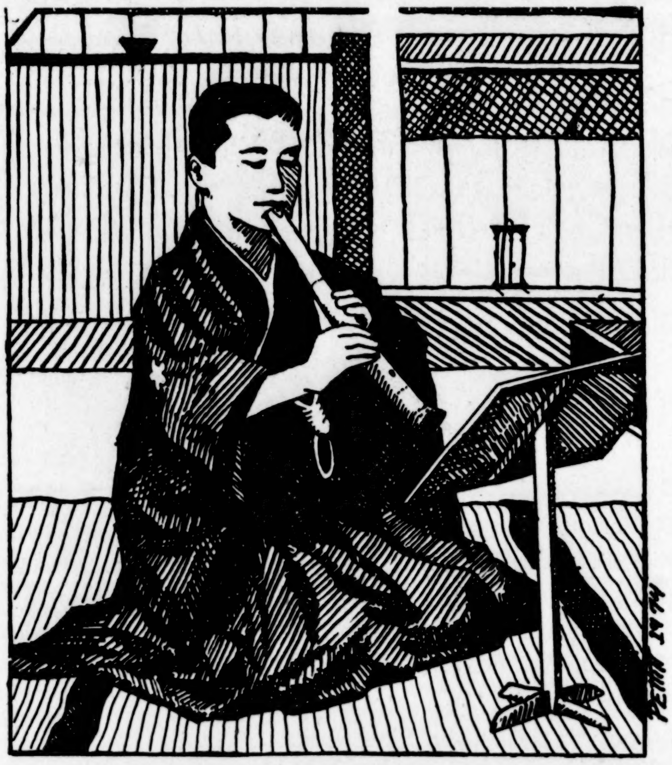
My love for the shakuhachi and work with bamboo heightened my interest in the plant, its utilization, cultivation, and potential here in the U.S. In the Orient bamboo is employed in literally thousands of different ways and for as many purposes; from scaffolding in building construction to wisks for blending tea. The plant produces one of the strongest natural fibers known (once used for hauling ocean liners through canals and harbors). It is also one of the fastest growing, most vigorous and fertile plants in existence. A growth of nearly four feet in a single day was recorded by an authority on the subject. Contrary to popular opinion, bamboo is not a tropical plant. There are literally thousands of varieties, many of which are quite hearty and can survive sub-freezing temperatures. The most prolific variety of bamboo in Japan, madaké (phyllostachys bambusoides) is one such type. While its smaller younger culms are used for making shakuhachis, if allowed to develop this species can grow into timber bamboo as wide as 7" in diameter. Madaké and other varieties such as moso (whose shoots are used for eating) are perfectly adapted for cultivation in the U.S. I have seen magnificent stands growing not more than an hour's drive from my home in northern California. The climate of much of the state as well as the southeastern part of the country appears to be perfect for the cultivation of bamboo. Of course, as vigorous as the plant is some care must be taken to aid in the development of a grove. The following sources go into just about all the aspects involved in getting a stand started and flourishing. It is my hope that people in this country will get turned on to the many uses and the beauty of this incredible plant.

Bamboo. Robert Austin, Dana Levy, & Koichiro Ueda. (N.Y. & Tokyo: Walker/Weatherhill, 1970). $15.00 Well worth the price. Ueda is one of the foremost authorities on bamboo in Japan.

Bamboo in the United States: Description, Culture and Utilization. Robert A. Young & Joseph R. Haun. (Agriculture Handbook No. 193, June, 1961). 35¢

The Bamboos: A Fresh Perspective. F.A. McClure (Cambridge: Harvard Univ. Press, 1966).

Bamboos: A Gardener's Guide to Their Cultivation in Temperate Climates. Alexander High Lawson. (London: Farber & Farber, 1968)



Bamboos of the Genus Phyllostachys Under Cultivation in the United States. (Agriculture Handbook No. 114). 35¢. The Ag. Handbooks listed can be obtained by writing the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 and enclosing the proper amount.

Growing Ornamental Bamboo. (Agriculture Handbook No. 76.)

Bamboos: Their Culture and Uses in the United States. B. T. Galloway. (U.S. Department of Agriculture Bulletin No. 1329, May 1925.)

Bamboos and Bamboo Culture. B.T. Galloway (U.S. Department of Agriculture Leaflet No. 18, February, 1928).

Japanese Bamboos and Their Introduction into America. David G. Fairchild. (U.S. Department of Agriculture Bulletin No. 43, July 3, 1903).

A footnote concerning the availability of commercial, cured bamboo in the U.S.: access and quality are both rather poor. If you are into finding a pole or two for some special project check out large Asian import stores, furniture or carpet shops or shade manufacturers. If you need more than a few poles consult the Yellow Pages in your area under the listing "Bamboo, Rattan, or Reed." The largest and most reasonable wholesaler of bamboo in the U.S. is Charles H. Demarest, Inc., 19 Rector St., New York, N.Y. 10006. This company will ship your order anywhere in the country. Be careful when purchasing poles sight-unseen as sizing is often quite random. The price of bamboo poles vary from 45¢ to $3.50 each depending upon the quantity purchased. In the last year the unit price has more than doubled.

That's about it. Still available from me is a free listing of books and records on the subject of the shakuhachi. Any questions or sources of information concerning bamboo, its cultivation, and acquisition are welcomed.

Sincerely,
Monty H. Levenson

P.S. You might be interested in contacting a friend of mine who is into making hand-made conga drums and log drums. He does all the work himself including curing the rawhide skins and making barrels. His work is really fine and sensitive to the spirit of the drum. He uses no metal, only wood and skin and has been into the craft for four years. His name is Ralph Pisciotta, c/o Earth, Air, Fire & Water Crafts, 236 E. Commercial St., Willits, CA 95490.

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In the Spring '74 **CoEvolution Quarterly** *we printed a Message from Higher Intelligence in obscure code. It fostered the above response from a Highly Intelligent reader. Translation of the original message follows:*

Cosmos, The Medieval

. . . Go out on a starry night and walk about for half an hour trying to see the sky in terms of the old cosmology. Remember that now you have an absolute Up and Down. The Earth is really the centre, really the lowest place; movement to it from whatever direction is downward movement. As a modern you located the stars at a great distance. For distance you must now substitute that very special, and far less abstract, sort of distance which we call height; height which speaks immediately to our muscles and nerves. The Medieval Model is vertiginous. And the fact that the height of the stars in the medieval astronomy is very small compared with their distance in the modern, will turn out not to have the kind of importance you anticipated. For thought and imagination, ten million miles and a thousand million are much the same. Both can be conceived (that is, we can do sums with both) and neither can be imagined; and the more imagination we have the better we shall know this. The really important difference is that the medieval universe, while unimaginably large, was also unambiguously finite. And one unexpected result of this is to make the smallness of Earth more vividly felt. In our universe she is small, no doubt; but so are the galaxies, so is everything–– and so what? But in theirs there was an absolute standard of comparison. The furthest sphere, Dante's *maggior corpo*, is, quite simply and finally, the largest object in existence. The word "small" as applied to Earth thus takes on a far more absolute significance. Again, because the medieval universe is finite, it has a shape, the perfect shape, containing within itself an ordered variety. Hence to look out on the night sky with modern eyes is like looking out over a sea that fades away into mist, or looking about one in a trackless forest–– trees forever and no horizon. To look up at the towering medieval universe is much more like looking at a great building. The "space" of modern astronomy may arouse terror, or bewilderment or vague reverie; the spheres of the old present us with an object in which the mind can rest, overwhelming in its greatness but satisfying in its harmony. That is the sense in which our universe is romantic, and theirs was classical.

— C.S. Lewis

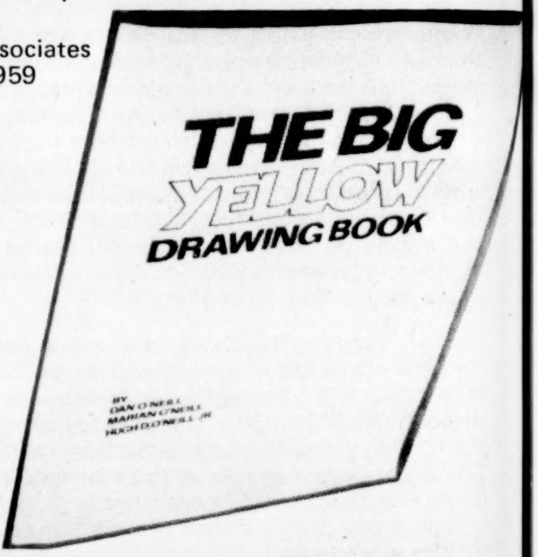
(From **A Certain World,** *W.H. Auden, 1970, Viking)*

The Big Yellow Drawing Book

How to cartoon. Dan O'Neill's fiendish plot to free the world–– create millions of skilled cartoonists. (And put himself out of business. O'Neill is responsible for the daily strip "Odd Bodkins," "Air Pirates Funnies"–– sued by Walt Disney Productions–– and two books, **Hear the Sound of My Feet Walking Drown the Sound of My Voice Talking** *and* **The Collective Unconscious of Dan O'Neill.***) This workbook was co-authored with Dan's father Hugh, an education professor. There's no better introduction to the deadly science.*

–SB

The Big Yellow Drawing Book
Dan O'Neill, Marion O'Neill, Hugh D. O'Neill, Jr.
1974; 64 pp
$2.50 postpaid
(schools may inquire for special discount)
from:
Hugh O'Neill and Associates
Nevada City, CA 95959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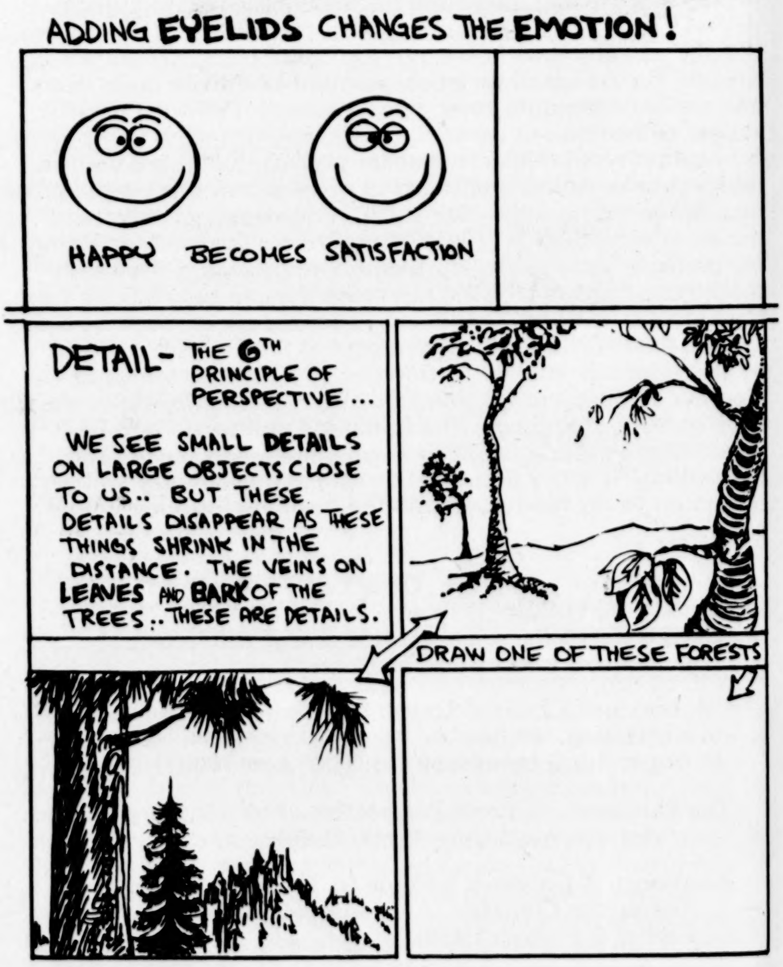
YELLOW
DRAWING BOOK
BY
DAN O'NEILL
MARIAN O'NEILL
HUGH D. O'NEILL, JR.


ADDING EYELIDS CHANGES THE EMOTION!
HAPPY BECOMES SATISFACTION
DETAIL- THE 6TH PRINCIPLE OF PERSPECTIVE ...
WE SEE SMALL DETAILS ON LARGE OBJECTS CLOSE TO US.. BUT THESE DETAILS DISAPPEAR AS THESE THINGS SHRINK IN THE DISTANCE. THE VEINS ON LEAVES AND BARK OF THE TREES.. THESE ARE DETAILS.
DRAW ONE OF THESE FORESTS

Infant readers

Children can and will read as early and surely as they talk if we let them do it their way.

(As John Holt says, "If we taught them to talk the way we teach them to read. . . they'd never learn.")

. . . Try to imagine the breakthrough. Kids who are reading before they get to school cannot fail at reading later, and will find reading a joy from the start, not a crashing bore. (Two-year-olds enjoy "Look Jane, see the dog." Where reading waits 'til six, nothing the child can read can possibly interest him.)

What is needed is one community where the local newspaper and TV station would cooperate, and the local schools would not obstruct. Help me find one. (The Montclair Early Reading Project looks to be getting half the 2-year-olds reading——but there is no local TV station, and the local newspaper won't help.)

Sincerely yours,
Daniel Melcher
Charlottesville, VA

Daniel Melcher wrote a thorough article on this subject in the October '73 **Library Journal**. *In it he says there are only two "secrets" to success:*

> *First, you should start by age two if you can. Later is harder. Second, for at least the first few words, it pays to use VERY LARGE TYPE. Beyond that, almost any method works, provided you make a game out of it and stop before the child wants to stop.*

Sensible Medical School

Carlos Biero
c/o Dr. George Adams
Associate Dean
College of Medicine
University of Arizona
Tucson, Arizona

Formerly a medical specialist in immunology, Carlos Biero has opted for a new kind of medical education. From the first year class of a medical school in Mexico City that is required to accept all qualified applicants, Carlos Biero has been allowed to select a few dozen students for an experiment. The first two years of most medical schools in the world leaves the student prepared only for the third year and with a paucity of useful skills. Biero has an apprenticeship program whereby the students learn useful skills first and learn theory as it arises from specific problems. Biochemistry is learned through nutrition. Anatomy begins with surface anatomy. There are no dropouts. Students can peel off at any time and go into any one of the health professions with skills that can be used at any medical facility. His ultimate goals include the demystification and decertification of medicine. Book forthcoming from U.S. publisher.

–Michael Brewer
Tucson, Arizona

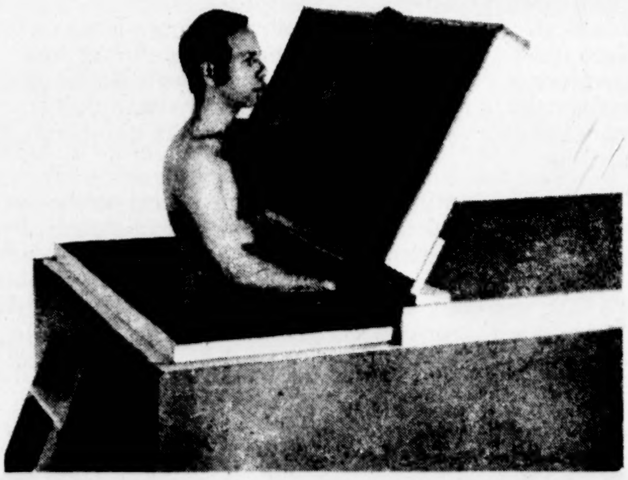
Sensory Deprivation Tank Kit

John Lilly voyaged in sensory deprivation——total dark, silence, body-temperature water, floating——as early as 1954. His later work with dolphins, LSD, and biocomputer theory made him renowned. These days in L.A., he's back in the tank, researching anew.

In cahoots with Lilly, Samadhi is offering a kit for a wooden tank which includes all the essential hardware——filters, temperature control, air circulation, etc. The wood may be bought locally for about $75.

–SB [Suggested by Stan Howard]

Samadhi Tank Kit
$900 FOB Mar Vista CA (60 lb.)
from:
Samadhi Tank Company
4322½ Inglewood Blvd
Mar Vista, CA 90066



Vast miniatures

My contribution is to mention something that you overlooked in the "educational-games-war-games" section. Which is the vast miniature figure manufacturing people who make figures from 5-15-25-54 MM in size for wargaming and collecting,achients to modern figures, Science Fiction & Fantasy Figures for the massive mind boggling Lord of the Rings wargame.

The figures are always a fine cast sculpture and a piece of artwork in the least, and when painted are fantastic——I, myself have an 8,000 figure Napoleonic wargame army alone—and paint figures for commission on the side.

The wargaming process with miniature figures is more satisfying than the board games and much more personal——I find that the miniature wargamer is much more pacific caracture than his board comrade who uses impersonal counters.

Mindbogling catalogs can be had from: The most extensive and varied everything

The Soldiershop, Inc.
1013 Madison Ave.
N.Y.C., NY 10021

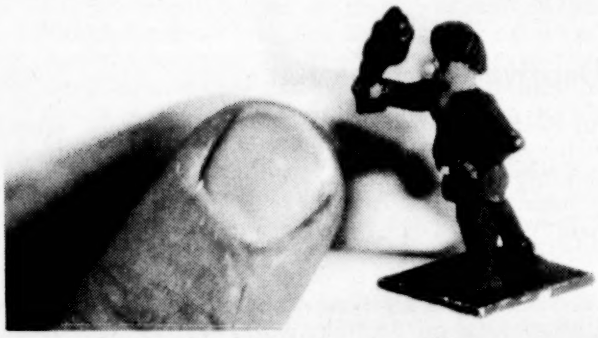
old subscription rate 4-quaterly catalogs $4/1 yr extensive selection:

Miniature Figurines USA, Inc
4311 Lemmon Ave
Dallas, Texas 75219
catalog $1.25

good selection

Miniature Figurines Ltd.
Box P
Pine Plain, NY 12567
catalog $1.25

Best Regards,
Michael Gilbert
Master of Space & Time
22 Koster Blvd. 5a
Edison, NJ 08817



(L. of the Rings) Inclosed, a troll—— in this scale Hobbits are that tall

The Boomerang Man

I've received an awful lot of mail as a consequence of the piece (CATALOG p 387), and mailed out a lot of free literature as a consequence. The entry was a real service. And incidentally, a number of people used the plan that is reprinted and, with one exception, said the boomerang came out fine.

A final note. Partly to make a few bucks and partly out of altruism (the Smithsonian gets to one in this regard), I've set up a small boomerang mail order business. The point is that good boomerangs at fair prices are just not available in the U.S., and competition boomerangs not at all. Anyway, if you want to mention that my mailing list is available, I'd appreciate it. The listing should read: Ruhe-Rangs, Box 7324 Benjamin Franklin Station, Washington, D.C.

The best,
Ben Ruhe

Lindisfarne

Lindisfarne seeks to help the individual achieve a transformation of consciousness through the esoteric teachings and practices of the great universal religious including Buddhism, contemplative Christianity, mystical Judaism, Sufi and Yoga.

For the mind there will be seminars, workshops and lectures in philosophy, the physical sciences, Jungian psychology and world order models.

The body disciplines of Hatha Yoga and Tai Chi complete the balance of the program.

To bring the centralizing spiritual and planetary vision of Lindisfarne into sharp focus, William Irwin Thompson, Lindisfarne director, will offer a course on the Transformations of Human Culture.

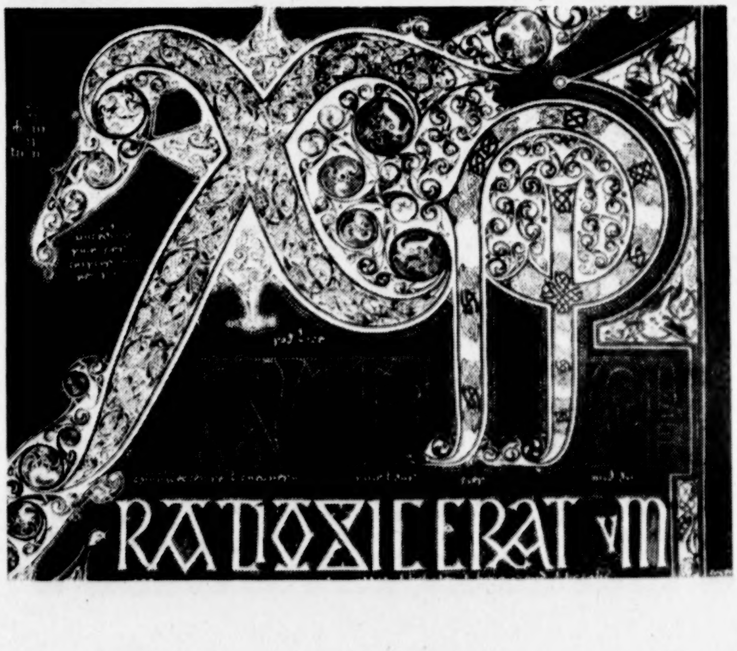
Lindisfarne is located on the Peconic Bay near the eastern tip of Long Island about 4 miles north of Southampton, N.Y. The 11-acre Lindisfarne property is surrounded by water and woods and has its own beach which is about 1/5 of a mile long. There are 29 log cabins facing the water and a large main building overlooking a cove. This building houses dining facilities, seminar space, meditation room, library and additional bedrooms.

The community's summer session, May 25 through August 20, will be in 2 selfcontained parts: May 25 - July 5 and July 8 - August 20. If space is available a limited number of residents may be accepted for only one part rather than the full session. A ten day conference August 24 to September 2. PLANETARY CULTURE AND THE NEW IMAGE OF MAN. Participants from the arts, sciences, and religion will be announced later in the spring. The cost for the summer program is $1,600, if you stay on for the 10 day conference the cost if $1,850. If you can only come for one of the self-contained parts of the session the cost is $900 for the six weeks. The ten day conference will cost $400. For a limited number of residents Lindisfarne will offer a self-contained weekend program. The cost is $900 for the full weekend summer session. Costs include an individual study-bedroom, all meals and tuition.

If you are interested in becoming a resident please tell us something about yourself - where you are now and where you feel you want to go is the only basis for qualifying. A deposit of $100 will secure your place. If it turns out we cannot accept you or that you do not wish to become a resident, the deposit will be refunded.

Lindisfarne operates communally. There is structure in terms of the fixed program but within this structure each person is free to pursue his own path using the teaching fellows and the community as a whole to help in his development. We live as a community each seeking to help the other and with all of us helping the community by contributing two hours of work daily to the community.

For more information write to: The Lindisfarne Association, P.O. Box 1395, Southampton, N.Y. 11968. Phone: 516-283-8210.



Readings in Sufism

Sufi writings have been widely misunderstood in the West. In any tradition, the mystics have often been misunderstood and even persecuted by the orthodox, and so with the Sufis of Islam. Their writings therefore have often been indirect, "coded" as some like to say. Moreover, the esoteric knowledge of the Sufi cannot really be expressed discursively, but can only be hinted at, alluded to, described by metaphor and symbol. This is indicated by the following Persian couplet:

O you who are unaware of burning and being burned
Know that the coming of love is not something learned.

Earthly love, wine, the cup-bearer, the moth extinguishing itself by its attraction for the flame of the candle are all used in Sufi writings to express the inexpressible. Those who already know, recognize in them the spiritual experience of their author and may find they give coherent form to their own experience. Sufi writings are also designed to arouse a certain recognition in those who are beginning to awaken, to stir a kind of nostalgia, and in this way are a means of setting out to find the Way.

The following list includes some of the best-known and most comprehensible material on Sufism and Islam. Here an explanation and a caution are necessary. Because there is no set form of Sufi practice it should not be supposed that the Way is indefinite. The Sufis say there are as many ways to God as there are human hearts. Only a Master who knows the hearts can give the key to open them and show the Way. This key, which may differ according to the lock, is called the Remembrance of God (*Dhikr* or *Zikr* in Arabic), often, but unsatisfactorily, translated as "invocation" or "commemoration." This practice is widely known and indeed something like it appears in many mystical ways, such as the Prayer of Jesus in the Orthodox Church or the mantras of the Far East. Masters of all Ways agree, however, that it is useless and even psychically dangerous to undertake such practices unless they are given under the direction of a master. Writings about the Sufi Way, therefore, even though they occasionally describe such practices in some detail, should be regarded as preliminary and descriptive and by no means taken as guides for do-it-yourself spiritual practices.

The following list of books can serve as a good introduction to Sufism. (Readers with no prior acquaintance with the subject might get a feel for the "flavor" of Sufi mysticism by beginning with Rumi and Attar, or with the modern works by Lings and Dallas.)

Arberry, A.J. **Sufism.**

Perhaps the best elementary overview of Islamic mysticism by an eminent scholar in the field. An excellent introduction.

Arberry, A.J. **The Discourses of Rumi.**

A collection of stories from the works of the great Persian poet, similar to tales of the Hasidim and to Zen stories.

Attar, **The Conference of the Birds.** (Nott edition)

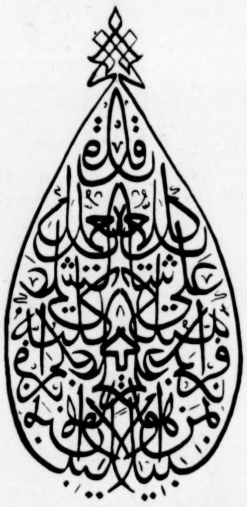
A free translation, inspiring in English and profoundly moving in its effect. Through folk-tales, allegories, and lyrical descriptions, Attar has written a parable of the soul's quest for God.

Burckhardt, Titus, **An Introduction to Sufi Doctrine.**

A short but dense work summarizing the intellectual foundations of Sufi mysticism, as expounded from the traditional point of view. Strongly influenced by Ibn al-Arabi. Valuable but not always easy to understand.

Dallas, Ian, **The Book of Strangers.**

This recent novel, written in the style of Borges or Hesse's **Journey to the East**, has been widely acclaimed for its presentation of the Sufi way of life in a fictional-allegorical framework.



Everyone acts according to his understanding, and God alone knows who is rightly guided. S. XVII, v. 85, **Qur'an**, *written in* mirror-style *calligraphy.*

Hujwirri, **Kashf al-Mahjub** (The Revelation of the Veiled) trans. R.A. Nicholson.

A classic of early Sufi literature. Very rich, but it is important to have some prior familiarity with Sufi doctrine.

Lings, Martin, **A Sufi Saint of the Twentieth Century.**

A beautiful portrait of a contemporary Shaikh (Spiritual Master) and a sympathetic exposition of his teaching. Highly recommended.

Nasr, Hosein, **Ideals and Realities of Islam.**

An introduction to the religion of Islam, this book reveals Sufism as essentially Islamic mysticism. Written from within Sufism by one of the leading scholars of Islam.

Nasr, Hosein, **Sufi Essays.**

A recent collection of essays exploring aspects of Sufism in its history and in its encounter with the modern world.

Nicholson, R.A., **Rumi: Poet and Mystic.**

A selection of short lyric poems, taken chiefly from Nicholson's own translation of Rumi's masterpiece, the **Mathnawi**. Recommended as an introduction to the greatest of the Persian mystical poets, Jalal ad-Din Rumi.

Rice, Cyprian (O.P.), **The Persian Sufis.**

An insightful introduction to Sufi doctrine by a Catholic writer which enjoys the imprimateur while acknowledging the guidance of a Pir of the Ni'matullahi Order.

Schuon, F. **Understanding Islam.**

Perhaps the finest exposition of the perennial and spiritual truth of Islam available; by a European Muslim from within the Sufi tradition. Profound but intellectually difficult; extremely worthwhile.

Shah, Idries, **The Sufis.**

Only one of Shah's many works but this book is the longest and the most original. Unfortunately, the "originality" also extends to the author's treatment of traditional Sufi teachings, which are developed in a speculative manner. Yet it is engagingly written, and, perhaps for this reason, has enjoyed wide popularity with those who are unfamiliar with Sufism.

Trimingham, J. **The Sufi Orders in Islam.**

An outstanding work of scholarship which treats the social and institutional framework of Sufism through its history.

– Charles I. Campbell
Khaneghah Maleknia Naseralishah
New York, NY

BY MICHAEL McCLURE

Photographs by Ron Scherl

"Gorf" is a musical comedy.

"Gorf" is a hot-blooded cartoon.

For five months now San Francisco audiences have been driven into a gaga glee by John Lion's Magic Theater production of Michael McClure's "Gorf." It's the highest theatrical experience I've had, comparable, I imagine, to being in Berlin in the Thirties and seeing Brecht's "Threepenny Opera."

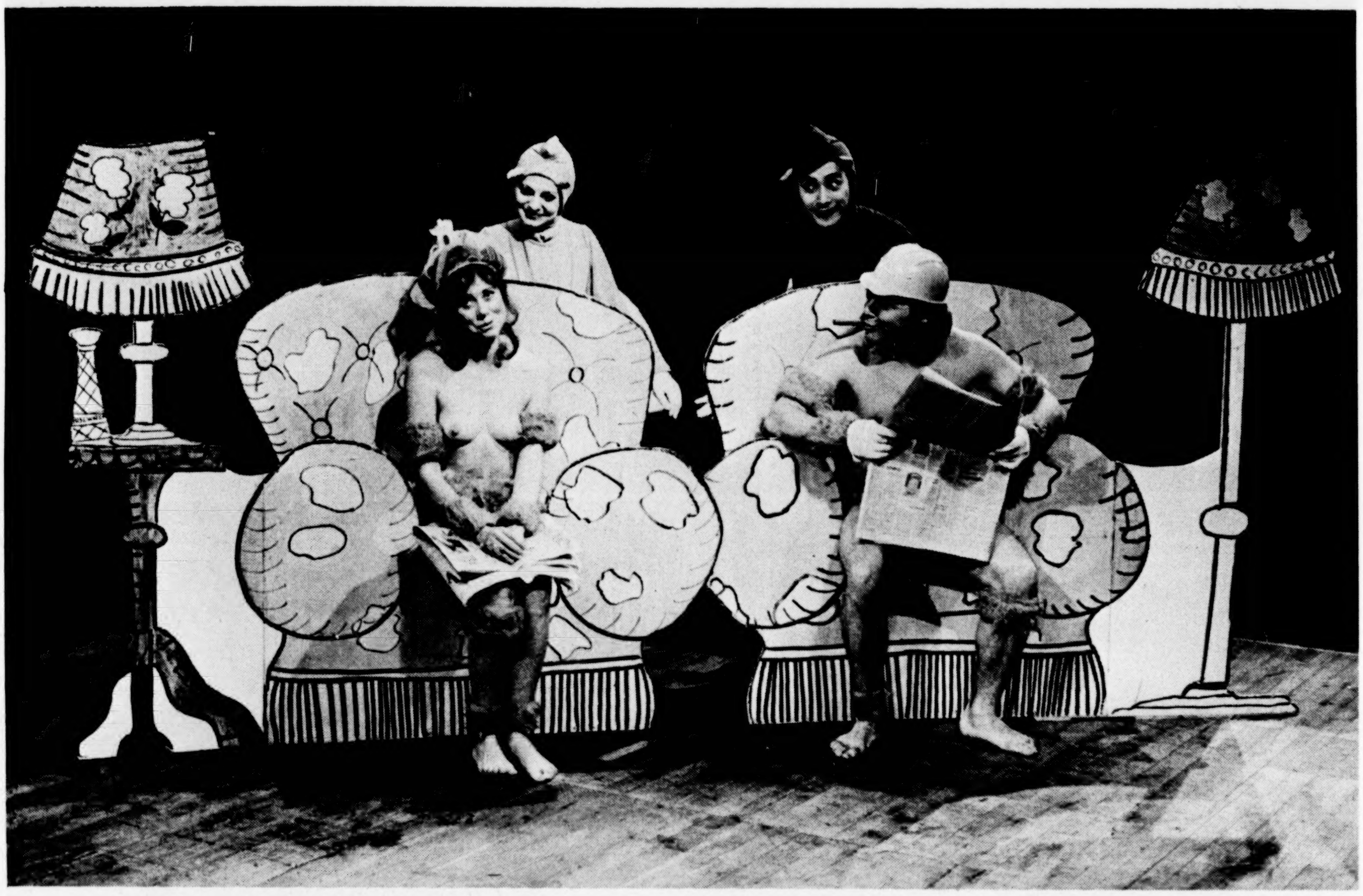
A professional production but not a commercial one, "Gorf" is now closed. If a commercial production could be mounted, I believe the play would outdistance the grassroots success of "The Fantasticks."

Though the script presented here is no tool, it surely is participatory art, presented on the stage of mind. You provide the sounds, movement, music, effects, pace, characterization, audience reaction.

In the Magic Theater production, the orchestra (four musicians) are costumed as angels. The percussionist works on cowbells, coke bottles, balloons, duck calls, kazoos, slide whistles—— Spike Jones style. There is a whelming tape-sound-system with a wild motley (precise, but motley) of music, sound effects, and whatnot——100 sound cues. Mert and Gert, dead, coast across the stage on roller skates, going WOOOooooo! The two Stars, exquisitely nude, tap dance constantly. Whenever they stage-hand a prop onto the stage they come on CLICKCLICKCLICKCLICKCLICK!

Read "Gorf" aloud, and not sitting down.

–SB



PROLOGUE: The Ur Gorf Drama

SCENUS: A small part of the stage is used for the prologue. The place is Thebes.

A man and woman, MERT and GERT, sit in overstuffed chairs reading newspapers by the light of two stand-up lamps. MERT and GERT are naked, but there are bands of fur around their bodies in odd places--the arms, the legs, the waist. The fur is pink and plumey. They wear white gloves.

On the floor are two television sets: TV ONE and TV TWO. The TVs are cabinets with windows in them. Heads, arms, and shoulders can be seen through the screens. They have huge red lips. They rest their arms on the screen ledge and gesticulate and reach out to each other. They shuffle around and dance. TV ONE has wings on his brow. TV TWO has horns on her forehead. They are mindless.

TV ONE: Woweeeee! Try some of this cereal, Honey! It is nummeee, numm! AND IT IS SO CRRRRRRRUNCHY!

[TV ONE shuffles a foot or two towards TV TWO and holds out bowl and a spoonful of cereal to her.]

TV TWO: Woweeee-wow! *[She hops towards TV ONE. In reaching with her mouth for a spoon of the cereal, held by TV ONE she jiggles the spoon and bowl. Some of the cereal falls out of the bowl onto floor and rattles and rolls around and makes grating sounds. The cereal is many-colored and bizarre and the milk with it is purple.]*

TV ONE and TV TWO: My goodness!

MERT: *[Lowers his paper, looks at TVs.] [Disgust.]* Jesus! *[Looks back at paper.]*

GERT: *[To MERT without lowering paper.]* What dear?

MERT: *[Muttering.]* Baseball... Baseball. . .

GERT: Oh.

TV ONE: *[Holding out another spoonful.]* Here, Poopsie, have some more. *[Grins big, loving grin.]*

[TV TWO hops to TV ONE. Sips large spoonful of cereal.]

TV TWO: Nummeee, numm! *[Big, sweet loving grin.]*

[TV ONE and TV TWO kiss each other-- huge, sweet, long lip-kiss.]

MERT: *[Quoting paper.]* Hmmmmmm. . . Says here: "Time and Space got sqwunched together when the scientificos messed around with the snooty-rootian movements."
Everything is gonna be different.

GERT: The what, dear?

MERT: The snooty-rootian movements--that is the way that little things jiggle around in eternity.

GERT: *[Turns page.]* Oh.

MERT: Yes, when we feel the big bump then we'll know everything is sqwunched together.

GERT: What will happen then?

MERT: I don't know.

TV ONE: *[Hugging TV TWO.]* NUMMEEE, NUMMMEEE, NUMMEEE, NUMM. . .*[Gives her big, smooching kiss.]*

TV TWO: *[Hugging TV ONE.]* NUMMEEEE, NUMMMEEEE, NUMMEEEE, NUMM. . . *[Returns kiss.]*

TV ONE: *[Winking at TV TWO, reaches and takes her hand.]* POOOOOOPSIE-DOOOOOOPSIE!

TV TWO: *[Winks at TV ONE and reaches and takes his other hand.]* POOOOOOPSIE-DOOOOOOPSIE!

[Spotlight on TV ONE and TV TWO. Music begins. A rhumba. They dance.]

TV ONE and TV TWO:

WHEN TIME AND SPACE GET SQUISHED TOGETHER
then it won't matter whether
there's weather
or not!
If hot,
then night is a feather
that strokes on the leather
WHEN TIME AND SPACE GET SQUISHED TOGETHER
whether there's weather or not!
Nummmeeee!
Nummeeee!
Nummee!
Nummee!

[Pause.]

NUM!

[They kiss.]

GERT: Mert, did you feel a bump?

MERT: Of course not, Gert. *[Doesn't look up from paper.]*

TV ONE and TV TWO:

Whether there's weather or not!
Nummmeeee!
Nummeeee!
Nummee!
Nummee!

[Pause.]

NUM!

[They kiss.]

Whether there's weather or not!!

[Music ends.]

GERT: I thought I felt a bump!

MERT: Shut the fuck up! *[Rattles paper--turns page.]*

[TVs feed each other cereal and make cooing noises.]

TV ONE and TV TWO: Cooo-cooo-cooo-cooo-cooo... Mmmmm. . . Cooo. . .*[Etc.]*

MERT: Goddam birds in the eaves again!

GERT: We been so lonely since the little Shitfer died.

MERT: Goddamit, pretend there never was the Shitfer!
Leave me the fuck alone! I'm reading!

GERT: The poor little Shitfer, he'd be twelve years old today if we hadn'ta got that phone call!

MERT: *[Paraphrasing.]* Says here there's been mysterious comets and cracks in the earth and big goopy things fell out of the air on top of an orphanage.

GERT: *[Sentimentally and desperately.]* MERT. . . MERT. . .

MERT: Shuttup! I'LL BREAK YER DAMN FINGERS!

TV ONE and TV TWO: *[Cont.]* Coooo-coooo. . . Mmmmmm. . . Coooo. . . Coooo. . .

[Enter GORF. GORF is purple. He is a flying cock and balls with a face and wings. His pubic hair is a yellow fright wig.]

GORF: *[Flies in all adazzle.]* ZOWEEEEEE! WOW, MAN! Hey. . . HEYYYYYYYY-YYYYYYYY?

[GORF stops midair to listen. He expects answer from the air or off stage.]

TV ONE: *[Happily stops cooing.]* Hi, Gorf!

TV TWO: Hi, Gorf!

GORF: *[Diving down to TVs.]* Wha's happening?

[MERT rattles paper.]

TV ONE and TV TWO: We're trying this new cereal and it is really really good and Mert and Gert are reading the paper and Mert was reading about baseball and it was really really good and then Gert asked him what he was doing and he read another part to her about how there's gonna be a big squish when the bump happens and Time and Space get sqwunched together and Mert and Gert wouldn't look at us at all––sometimes I think they don't even like to know we exist––and then they started talkin about the Shitfer again and it made us feel bad so we just pretended that it wasn't happening and everything––and before that we practiced our new rhumba dance with the spotlight and everything and it was really really neat. Hey, would you like to try some cereal? *[Offering spoonful.]*

GORF: No.

[Flies to edge of stage––turns--pauses.]

Hey, I'm checking on the bump.
There are all kindsa strange rumors about it.
I'm off to find out! *[Blows horn as he darts off stage.]*
TAAARAH! RARAAAH!

MERT: *[Reading.]* Says here the Penguins got wiped by the Elks.

GERT: Isn't that wasteful, dear?
Oh my goodness, I'm so concerned about the bump. I hope wherever the Shitfer is that the bump makes him better and happier.

You know that the net of his being was hurled through Time and Space––unfurled so to speak. . . Why he coulda been trapped in the tooth of a Mastodon a million years ago. Or he might be out there in the future with his fingertips on the edge of a hundred different stars. My goodness just think about it.

TV ONE and TV TWO: *[Song and dance with spotlight.]*

WHETHER IT'S WASTEFUL OR TASTEFUL
there's always something zestful
about snappy quappy
QWUNCHEROOS! You'll never have the blues
with snickery
quickery
QWUNCHEROOS!

[Kiss. Kiss. Kiss.]

with snickery
quickery
QWUNCHEROOS!

[Kiss. Kiss. Kiss.]

MERT: *[Meditatively. Not looking up from paper.]* Gert, remember that time I went to DEEtroit? *[Pause.]* I didn't really get robbed. No, sir. You know the hotel I Stayed in? Well it smelled good in there. . . like pretty plastic and rug shampoo, and there was color TVs before we even had one, and there was music on all the different floors of the building. You know what all that done? *[Pause.]* I mean it was really exciting. That and just being in the city where so much was happening. I mean it kinda turned me on––sexually––if you know what I mean. Anyway I didn't get hit on the head by robbers on a dark street like I told you. I got to talkin to the elevator operator and he told me dirty stories and I just got overwhelmed with the possibilities of what I could do with that money I was carrying to pay off the mortgage on the tractor.

GERT: My, my that was a time back, wasn't it Mert. What did happen, Mert?

MERT: Well, that elevator operator he was a smart young feller––kinda sneaky-looking but he could hold a drink and he could sure talk good too. He ups and went out and he got me eight girls. Boy, they was really somethin! There was one of every kind. There was two fat ones, there was one skinny as a toothpick, and then there was a blonde and a redhead and one with wiry hair––and there was one that was awful pretty but she didn't have no hands. . .I'll tell you, I get a real picture in the mind when I think about it.

They all took off their clothes. Gert, there was enough clothes there so that I coulda started a used clothing business––and that slick elevator operator he went away with my money. I guess we didn't need that tractor anyway. . .

[TV ONE and TV TWO shuffle over and stand gaping up at MERT. They hold hands as they gape. GORF peeps in from midair.]

I had the whole thing figured out. It wasn't easy but I did it. I put my dick in one girl––the one with the real big pretty ears––and I put my mouth right into the pussy of a real hairy girl, then I couldn't see too good but I got a hand in one girl, and a hand in another girl, then the two blonde ones laid the opposite direction on the bed and I put a foot each in them. They did wiggle and yell because we had been drinkin a lot of wine and beer and whiskey. The place smelled good with the smell of the rug shampoo and the turkey carcasses, 'cause we'd been eating a lot of turkeys. And the caviar that was left over smelled good too––and the whipped cream and strawberry shortcake. . .

The last two girls, the one with tattoos on her titties and the one that giggled and talked funny 'cause she'd smoked little cigarettes climbed right on too and I put a knee into each one of them. Well, we all wiggled and yelled. While I was doing it I thought about the story I was gonna tell you Gert. . . I had some money left afterwards. I didn't want to come home with any so I gave it to one of the girls who wanted to buy a little fox with glass eyes to put around her neck to keep her warm in the cold DEEtroit weather.

TV ONE and TV TWO: *[Admiring story.]* Wow! WOW! Hey that's neat!

[GORF darts across stage blowing bugle–– "TRARAHHH! TRAAHHH!"]

[TV ONE and TV TWO kiss each other–– "Smack, smack."]

GORF: *[Darting back across stage and off.]* THE BUMP IS COMING––THE BUMP IS COMING!! *[Blowing horn.]*

GERT:Mert, I was lonely while you was on that trip to DEEtroit. There wasn't anybody here with me except the little Shitfer who was only a toddler before he got lost and scattered into all Space and Time. We was here in the snow all by ourselves and the only company we had at first was the troop of cubs the Shitfer belonged to––for which of course I was the den mother. I was so lonely, missing you and thinking about our sorrow after your collect telephone call to tell me you was robbed and beaten up in DEEtroit, that I went to bed. Well, Shitfer and all the cubs was playin and they wanted to be mommy and daddy, so they got into the bed to pretend it was Sunday morning because the big tent in the back, out by the sump, burned down and they wanted to play inside.

GERT: Yes, Mert. Your story was interesting too.

Why I wouldn't be any more surprised if a giant hairy elephant sat down right on top of us.

GORF: *[Blowing horn fanatically, circling stage.]* THE BUMP IS COMING! THE BUMP IS COMING! RUN FOR YOUR LIVES THE BUMP IS COMING! *[Circles stage blowing horn.]*

[TV ONE and TV TWO step back and watch GORF admiringly.]

TV ONE: My, look at that!

TV TWO: ––And listen!

GORF: THE BUMP IS COMING IN THE SHAPE OF A GIANT HAIRY ELEPHANT!

TV ONE and TV TWO: WOW! WOW! *[Ecstatically pleased.]* Listen!

GERT: *[Reading.]* What do you make of that?

MERT: I don't believe it.

[Huge, hairy bulbous material begins to come down from ceiling slowly and heavily. Off stage horns begin trumpeting in unison with GORF's horn. The hairy material engulfs MERT and GERT who ignore it till the very end. They are crushed. The TVs stand watching crying "Wow!" excitedly and hugging each other and giving each other big hugs and kisses. GORF flies around blowing his horn as MERT and GERT are smothered. A piano duet plays amplified boogie-woogie all over the theater.]

GIANT AMPED VOICE: BUMP!

[STARS come out and dance. The STARS are nude people in STAR costumes with top hats and glitter. They dance in a row with a TV on each end. GORF flies around playing horn and singing. There are spotlights on STARS, GORF, and TVs. Spurts of water begin to spurt up like fountains at front of stage.]

OMNES: *[Song and dance.]*

PUT YOUR FINGERS ON A STAR
or you won't get very far
but no matter who you are
YOU
GOTTA
LEARN
to take good care of yourself!
YOU MAY NOT REMEMBER YOU'RE AN ELF
but you gotta keep tellin yourself. . .

[Chorus line kicks legs and throws handfuls of glitter.]

THAT YOU ARE
more than you think!
YOUR ARE REAL AND SWEET
and your feet are mighty fleet
and your voice and words are neat
AND
YOU
ARE
more than you think!

BABY, YOU'RE A FAIRY AND AN ELF!
you're an octopus and a star
but no matter who you are
you gotta take good care of yourself!

ALL THE GOLD AND SILVER IN THE WORLD
if you got it all uncurled
and out of the earth
wouldn't be worth
one smile, not one smile, from you. . .
Everybody loves your fingers and toes
—and you got the prettiest nose
SO
you gotta take good care of yourself
CAUSE
you are more than you think. . .

ALL THE GOLD AND SILVER IN THE WORLD. . . *[Etc.]*

[Trumpets, ballroom lights flash all through the audience, smoke effects, dry ice vapor, projections on walls, etc.

Darkness. During the darkness the chairs and props are suddenly removed. The Abyssinian desert is discovered on stage.]

Act One

SCENUS: Full stage. Night on the Abyssinian desert. There are huge desert plants and snakes. There is a boulder with a door in the front of it. Little curtains are hung in the windows on the door.

The time is the Mythic Era——begun at the death of MERT and GERT.

GORF is as he appears in THE UR GORF DRAMA. He is a flying cock and balls. He is purple with wings and a face and a yellow fright wig.

TV ONE and TV TWO stand in the shadow of a huge desert plant. They are as in THE UR GORF DRAMA. Their faces and arms lean out of television cabinets. They have huge red lips and they shuffle around. TV ONE has wings on his brow——TV TWO has horns on her forehead.

GORF is in a spotlight at the beginning. He stands dejected and noble——his wings droop. He is lamenting.

The opening music is for drums, ocarina, and muted bagpipes——mournful in mode with occasional chimes of brass.

GORF: WOE! *[Shakes his wings.]* WOE! *[Shakes wings.]* Oh woe! Woe! Woe! Triple Woe!

[Chimes.]

TV ONE: *[Shuffles to GORF.]* Gorf! Hey Gorf! Don't be sad.

GORF: *[Pushes TV ONE back into shadow with his wings.]* Shut the fuck up! *[Grand manner.]* WOE! Oh sorrow, that I—I of all creatures should be so. . .

TV TWO: *[Shuffling forward with TV ONE.]* Yeah, Gorf. Hey Gorf. Come on, don't be sad, Gorf.

GORF: *[Pushing TVs aside.]* OH TRAGEDY-Y-Y-Y! OH WOUNDED SORROW THAT I AM BRUISED BY THE DEATH OF FRIENDS. AND THAT THEIR DEATHS ARE ADDED TO MY PRIOR PAINS! OH WOE! Oh Mert! Oh Gert!

TV TWO: Hey, Gorf we can dance for you! Hey Gorf watch this.

[TV ONE and TV TWO take out canes and straw hats. The music comes up for a soft shoe number.]

TV ONE: *[Dancing and bowing.]* I am TV ONE. . .

TV TWO: *[Dancing and bowing.]* I am TV TWO. . .

TV ONE and TV TWO: *[Together.]* We'll chase away your cares. . . *[Pause.]* We can chase away your. . . *[Pause.]* blues.

GORF: SHUT UP! SHUT UP! GET THE FUCK AWAY!

[GORF pushes them back into the shadows of desert plants.]

TV ONE and TV TWO: Hey Gorf! We only wanted to cheer you up. You're really neat, GORF.

GORF: *[With arm over brow.]* OH LONELINESS OF DESERT CASTAWAY! That I should be blamed for the demise of friends. —That I who tried to warn them with my mystic horn am condemned as their murderer! The city throng does howl for me, to take me to the gallows straightaway! Oh Mert, Oh Gert, that I should be blamed for your deaths! Gods! GODS! STRIKE THE PARANOIDS WHO BLAME ME FOR THE DEATHS OF MERT AND GERT WITH AN ANGRY CRASHRATTLE! *[Thunder and lightning.]* Tear the skin off them and roll them in the gravel!

Let my horn again sound in the streets of Thebes! *[GORF blows horn:* TRAAAAH-TaraHHHHH.*]*

Yeah, let me again soar through the urban air and brighten city morning with my purple flash. The desert is too cruel for me! *[Blows horn.]*

TV ONE and TV TWO: *[Shuffling to GORF.]* Wow! Oh Gorf, you are really so neat. If you'll play the horn we'll dance Gorf.

GORF: *[Looks around fearfully.]* I hope the townspeople looking for me didn't hear the horn! I forgot!

[Sound of dogs baying, sirens, shouts. Voices off stage: "Where is he?" "Where is that prick?"*]*

Here they come! Wow! There's no escape unless I disguise myself!

[GORF darts behind the boulder. The TVs give each other a huge smacking kiss.]

TV TWO: Hey where did he go? *[Pause.]* Oh well.

[TVs embrace each other.]

TV ONE: Nummeeee, nummmeeee, nummeeee, numm. . .

TV TWO: Nummeeee, nummmeeee, nummeeee, numm. . .

TV ONE and TV TWO: Whether there's weather or not! *[They kiss again.]* Smack! Smack!

[TV ONE and TV TWO stand looking into each other's eyes. Long silence broken only by a flute tendril of night music. Then everything is still. The moon crosses the sky. Two SHEPHERDS enter. The SHEPHERDS are dressed in burnooses. They are huge and fat and they have long, bloody tusks. They carry crooks.]

SHEPHERD ONE: Hey, Shepherd, look dere is da moon crackin open da darkness of Lady Night.

SHEPHERD TWO: Yeah!

SHEP. ONE: We the common people, the workin class, often thinks about poor Gorf.

SHEP. TWO: He who is so wrongfullishly accused of duh merder of Mert and Gert. *[Uncorks bottle, takes a nip—passes it to SHEP. ONE.]*

SHEP. ONE: Yeh. *[Pause.]* We know dat Gorf could never commit so bastardly a crime upon his longtime pals.

SHEP. TWO: Yeh. Dey was sure crushed flat— Mert and Gert was.

[SHEP. TWO takes out a hypodermic needle and shoots up.]

[TV ONE and TV TWO move forward fascinated watching SHEP. ONE and SHEP. TWO.]

SHEP. ONE: But it is the upper class, and the middle class, and the bureau-ocracy, and the scientificos that seek to blame Gorf and thereby off him from da scene.

SHEP. TWO: Yeh, and da paranoids!

SHEP. ONE: And da paranoids is after him too.

SHEP. TWO: Yeh.

SHEP. ONE: Jeez, I hope we gets a chance to help him.

SHEP. TWO: Yeah, me too.

[A dead lamb drops out of SHEP. ONE's burnoose.]

SHEP. ONE: Jeez, lookadat.

SHEP. TWO: Yeh, bed and breakfast. *[Picks up lamb.]*

[SHEPHERDS pass off stage. TV ONE and TV TWO follow from a distance––fascinated.]

TV ONE: *[To TV TWO.]* Boy, are they neat!

TV TWO: Yeah.

TV ONE and TV TWO: *[Following after SHEPHERDS.]* Hey wait! Wait! Baaaaaaa ba-a-a-a-a...

[As they exit they imitate sheep.]

[Empty stage. Flute music. Silence. Pause.]

[MERT and GERT step out of air onto top of boulder. They are as they are in THE UR GORF DRAMA. They are naked with bands of pink fur in odd places and they wear white gloves. Both of them carry a newspaper. In addition, their hair has become Medusa hair and is filled with writhing snakes. They also have a few streamers of black ribbons tied to them in various places, and there are red gobbets of gore here and there on their bodies.]

MERT: Gert, this is like the elevator was in the hotel in DEEtroit––you can just step out of the air and be any place you want to be.

GERT: But wouldn't it be nice, Mert, if we could just step out somewhere and find little Shitfer standing there and staring up at us with his big eye. Land sakes, Mert, I even miss Shitfer when I'm dead.

MERT: Listen, Gert, we ARE going to find Shitfer. I've got the feeling. When I get the feeling––we get action.

GERT: Yes, that's right, Mert. What you always say is right, Mert.

MERT: That's right, Gert. But first things have got to come first––even when we are dead, Gert.

GERT: That's right, Mert.

MERT: So, the first thing we've got to do since we've become Assistant Furies is to avenge ourselves against the ruthless murderer that slonked us into the afterworld.

GERT: When I get that giant hairy elephant I am going to twist his tail till he squeals.

MERT: Listen, Gert, it wasn't the giant hairy elephant that killed us. . .

GERT: *[Pointing to gobbets of blood.]* I hope you don't think this is acne, Mert. Dear, we were sit upon by a giant hairy elephant. So therefore it was a giant hairy elephant that killt us.

MERT: A giant hairy elephant did not think up the idea of coming and sitting on us by himself.

GERT: Then I'll bet his wife thought of it!

MERT: Nope.

GERT: Golly, who would want a giant hairy elephant to sit on us?

MERT: Who was there at the scene of the crime watching and gloating?

GERT: The TVs?

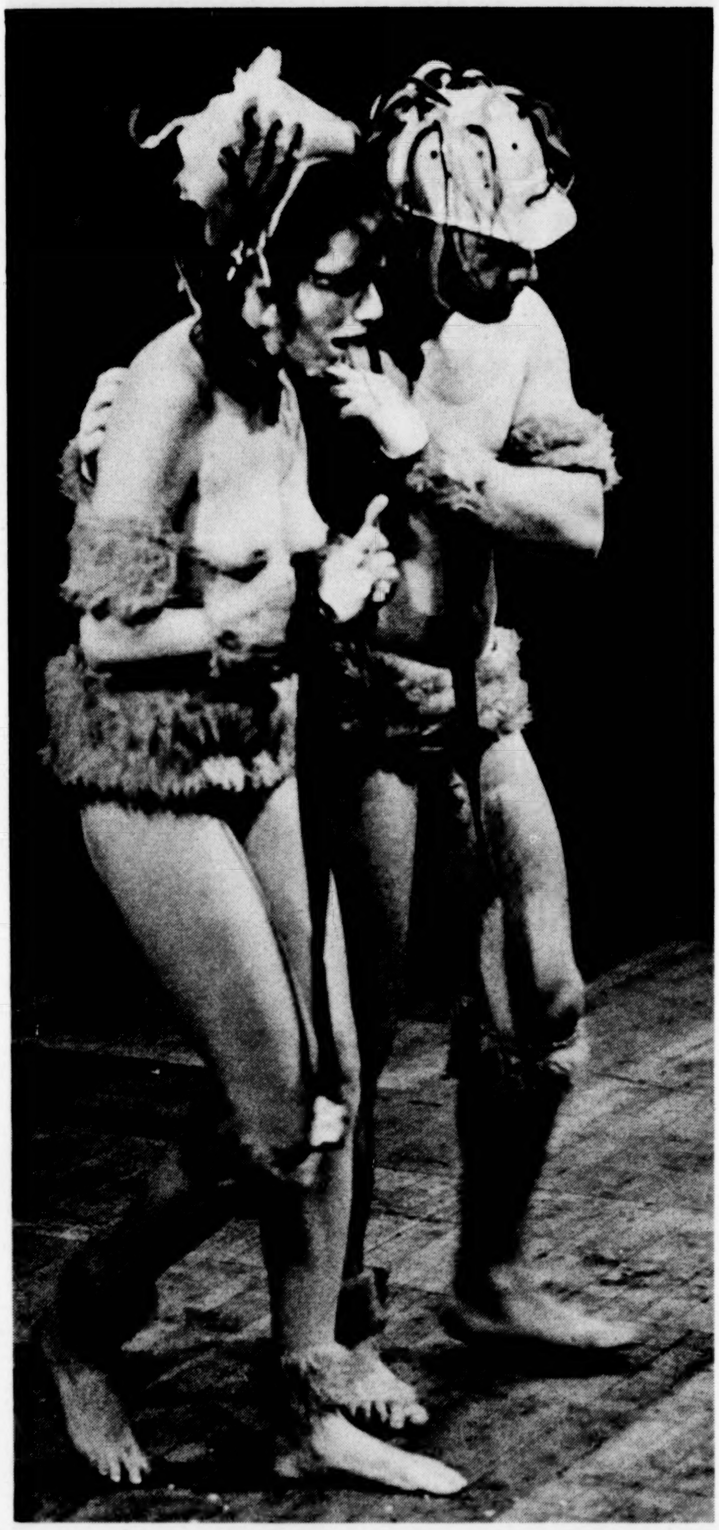
MERT: They was there but it was not them!

GERT: Who?

MERT: He was playing a musical instrument.

GERT: The piano?

MERT: Nope, a magical horn. A magical horn with which our murderer might summon a giant hairy elephant out of the abyss and the chasm created by the sqwunch and the snooty-rootian movements when



the great Bump happened.

GERT: Gorf?

MERT: YEP!

GERT: Not Gorf!

MERT: Yes!

GERT: Why did he want to do that?

MERT: So we would not find out where Shitfer has gone!

GERT: The winged rat!

MERT: And so he could get the TVs.

GERT: Let's get the little fucker—–I'm really mad now!

[MERT and GERT leap into air and disappear.]

MERT and GERT: *[Their voices in darkness.]* AWAY-Y-Y-Y-Y-Y!

[Silence. Pause. Sound of dogs baying, sirens moving away into the distance. Searchers. voices: "Find Gorf!" "Find the little purple shit." *Etc.*
Silence.
Pause.]

[Enter CHORUS OF NAKED STARS. The NAKED STARS are as they are in THE UR GORF DRAMA. They are naked with silver top hats and glitter. They enter carrying flashlights and doing a step that is a cross between a march and a dance. The music is amplified dulcimer, ocarina, boogie-woogie piano, and bells.]

CHORUS OF NAKED STARS:

WHERE, OH WHERE, IS THE HERO GORF?
HE ISN'T AT THE BARNYARD!
He isn't at the wharf!
Where moon peeps
or flashlight leaps
there is no Gorf.
Great Gorf cannot be seen.
I get the creeps
when I think he might be gone.
What if his wings have gone astutter?
Mayhap we shall no more see him flutter
round the belfries of the town?

Sing down-a-down. Sing down-a-down.

Desert of sorrow
Desert of grief.

CHORUS:

Sandy snakey place beyond belief!

[Sirens. Baying of hounds. Shouts of searchers: "Where the fuck is he?" Etc.]

CHORUS LEADER: Hark, the deluded ones search for the noble lord.

[The CHORUS listens and peers with hands shading brows. Sirens diminish into the distance. CHORUS begins high-stepping, and doing kicks. They throw glitter. There are fountain effects.]

CHORUS: One-kick! Two-kick! Three-kick!
Cheer up Gorf, don't be sad!
At rock bottom
everyone knows you can't be bad!
All of the evil and all of the rotten
never should have gotten
on your tail.
Great love will not fail
to win your case.
Gorf,
Gorf,
show your wings and face.
Great love will not fail
to win your case!
One-kick! Two-kick! Three-kick! *[Etc.]*

[CHORUS does high-kicks off stage in midst of fountains and flickering lights. They throw glitter.
Pause.
Silence.
Tendril of flute music.
Dawn begins to break.]

[GORF steps from behind boulder. He is dressed in a huge filmy nightgown and has several wigs on in odd places. His face is made up with rouge.]

GORF: *[With a little leap.]* No one will recognize me in the guise of woman. *[Pause. Pirouette. Brush at hair.]* I have determined to re-enter Thebes in the form of a girl. There will I find the murderers of Mert and Gert––the monstrous ones, who caused the giant hairy elephant to sit upon them when the Bump happened. But soft––Dawn breaks! Before the peep of Phoebus as I lay asleep in womanly dress my soul was gentled by a band of wandering sprites, in the shape of Stars, that sang to me. I was dreaming that I had the paranoids and murderers and I choked them one by one watching the veins burst bulbously upon their faces. And aye sweet it was to watch them cry out and writhe! ––Sweet the humility with which I strangled them and tortured their children. . . *[Pause.]* Methinks a higher thought appeared in shape of those nightly suns that we call Stars and they did remind me of my business in the town. . . And then I awoke all awonder and determined to go to Thebes and bring my dream to action. So with the convenience of this womanly garb I will do so. . .

[GORF sees a snake and grabs it.]

Wow! *[Sees more snakes and grabs them.]* MORE! *[Loud hissings.]* MORE! MORE!

I'll just put these snakes in this basket. When I get to Thebes I'll sell them. The populace will think that I am a harmless snake girl peddling my wares.

[Snakes revive with hissings and try to get out of basket.]

If I fly to Thebes they will recognize me and know I am Gorf. Therefore I will hitchhike. . .

[Sticks thumb out.]

[Hums in falsetto to tune of "Cockles and Mussels."] Singing vipers and rattlers and huge boas. . . Singing vipers and pythons. . . alive–– alive oh. . .

[MERT and GERT run across stage. They do not give GORF a second look.]

My disguise works. The avenging Assistant Furies do not know me. Gee, they remind me of Mert and Gert.

[Hums.] Singing pythons and boas. . . alive–– alive oh. . . *[Etc.]*

[Sound of motorcycle approaching. A motorcycle driven by the BLIND DYKE roars onto stage. The chopper pulls to a screeching halt in front of GORF. The BLIND DYKE weighs five hundred pounds, wears black glasses and a leather jacket, and has a crewcut. The BLIND DYKE leaps off her chopper and gropes with her arms out for GORF. Her voice is huge and deep.]

BLIND DYKE: HEY. . . HEY, PRETTY LITTLE MISSY, I HEARD YOU SINGING. IT IS I—— THE BLIND DYKE—— ON MY WAY TO DELIVER SOME PARTS TO THE AUTO REPAIR SHOPS IN THEBES. I HEARDJA SINGING. *[Grasps GORF by the negligee.]* CAN I GIVE YA A RIDE? *[GORF tries to run and fly for it but the BLIND DYKE has a firm grip on the nightgown. She grabs GORF stroking his various wigs.]* BY HEAVEN, THAT'S SURE A LOT OF HEADS YOU GOT, MISSY!

GORF: *[Squealing.]* Help! Help!

BLIND DYKE: There, there little thing. *[Slaver.]*

[GORF struggles.]

GORF: *[In falsetto.]* I'm waiting for my boyfriend. He's coming back from hunting. He wanted me to meet him right here. He has his twelve-gauge shotgun with him.

[GORF struggles free and escapes for a moment.]

BLIND DYKE: OOOOOOOPS! *[Melodiously.]* Where are you-ooo?

[The BLIND DYKE listens carefully——she runs at GORF.
GORF stops.
The BLIND DYKE listens.
GORF makes a little noise.
The BLIND DYKE runs at GORF with arms out.
The BLIND DYKE misses. She listens.
The snakes hiss.
The BLIND DYKE runs at snakes' hissing.]

GORF: *[Throwing falsetto voice like ventriloquist.]* ——I'm over here. . .

[The BLIND DYKE runs at GORF——she almost gets him. She listens. He breathes. She grasps him.]

GORF: Eeeeeeek!

BLIND DYKE: THERE, THERE, LITTLE MISSY! DON'T TREMBLE——WE'LL JUST RIDE INTO THEBES TOGETHER.

GORF: ——But my boyfriend!

BLIND DYKE: THAT'S ALL RIGHT! I KNOW WHAT TO DO WITH BOYFRIENDS! *[She devastates an imaginary boyfriend with karate chop.]* HHHHN! HAYEE! *[Several huge desert plants fall over.]*

[Two incredible, rough OUTLAW MOTORCYCLISTS run onto stage. They are in leathers and chrome chains.]

OUTLAW MOTORCYCLIST ONE: HEY, CRUNCH! LOOK, CRUNCH, IT IS THE BLIND DYKE! HEY, MAN IT IS THE BLIND DYKE WITH SOME WEIRD LOOKIN BROAD IN A NIGHTGOWN. HEY, MAN THIS IS OUR CHANCT TO KILL THE BLIND DYKE, STEAL HER BIKE, AND RAPE THE BROAD! HEY, MAN, OH HAPPY DAY!

OUTLAW MOTORCYCLIST TWO: YEH, SLUG, LE'S GET HER!

ONE: SURE MAN, YOU GET BEHIND HER!

[The BLIND DYKE drops GORF who lays on desert caught up in his wigs and negligee.
The BLIND DYKE listens and gropes the air.
With bellows and shouts the OUTLAW MOTORCYCLISTS attack.]

OUTLAW MOTORCYCLISTS: KILL HER! MURDER HER! OH HAPPY DAY! KILL THE BLIND DYKE!

[The BLIND DYKE attacks——she gouges the eye out of one OUTLAW MOTORCYCLIST and swallows it whole. He runs off screaming.]

BLIND DYKE: DASTARD MALES!

[She tears the arm off the other OUTLAW MOTORCYCLIST and beats him off stage with it amidst splashing blood.
Terrified screams of OUTLAW MOTORCYCLISTS disappear into distance.]

BLIND DYKE: THUNDERING SAPPHO, I HATE PECKERS AND BALLS!

[The BLIND DYKE feels around desert floor for GORF who tries to writhe away. She listens, hears GORF breathe, and gets closer. GORF tries desperately to writhe away but is caught in the nightgown. The BLIND DYKE grabs GORF and

picks him up. She gives him a huge kiss on the wigs, and fingers negligee slaveringly.]

BLIND DYKE: THERE, THERE, MISSY, EVERYTHING IS GONNA BE ALL RIGHT!

[In the process of groping GORF she takes hold of a giant snake.]

DROOLING PUSSIES, IT'S A PECKER! *[She bites snake in half.]* GNAWMF! oh heck it was just a harmless giant python. I THOUGHT IT WAS A PECKER! Well, maybe it was a boy snake and then it don't matter.

GORF: *[In higher falsetto.]* Right you are, big Blind Dyke.

[BLIND DYKE cradles GORF like a baby.]

BLIND DYKE: What is your name little lady?

GORF: Gorfetta! My name is Gorfetta, kind Blind Dyke.

I am fourteen years old and a sweet virgin.

BLIND DYKE: *[Song.]*

GORFETTA, GORFETTA,
what a sweet name is Gorfette.
What a pretty little hand you have.
It is made to throw confetti.
What pretty little toes you have
they remind me of spaghetti.
Let me kiss you on the cheek.
I will hug you till you squeak.
Gorfette,
Gorfette,
GORFETTE. . .

GORF: *[Trying to keep wigs on.]* Ooooh, what an impetuous thing you are Blind Dyke.

BLIND DYKE: Gorfetta, I am infatuated. You must be mine!

GORF: O-o-o-o-o-oh, but Blind Dyke, you are a woman. How could that be––and how could that happen?

BLIND DYKE: There are mysteries, Gorfette, that will be revealed to you. Never again will you be blue. The tongue of the Blind Dyke promises true.

GORF: Woo-woo!

BLIND DYKE: I will take you to my secret penthouse high above Thebes town––we'll have our marriage feast of divinity and pink caviar. I'll show you my collection of pickled cocks and balls!

GORF: Pickled cocks and balls?

BLIND DYKE: Don't worry, my little sweet, they won't hurt you. They are cut off and float in big barrels of vinegar. I've got more cocks and balls than any other dyke in Greece.

Hey, little Gorfetta, don't wiggle!

GORF: Oh, I am so anxious. Let's hurry to Thebes.

BLIND DYKE: Can't wait to see my collection?

GORF: Yes, to view it will be a visual confection.

BLIND DYKE: My dear!

GORF: Hurry, hurry I'm all atremble.

BLIND DYKE: I thought I felt you shakin'.

GORF: Wheeeeeeeeeeee!

BLIND DYKE: DON'T FORGIT YER SNAKES! AWAY WE GO!

[Chopper roars off stage with sparks and smoke. GORF in sidecar.]

[Long pause.
Tendril of flute music.
Door in boulder opens.
GIANT PENGUIN slowly walks to front center stage. Pause.]

GIANT PENGUIN: Ahem. . . Though I appear to be a giant penguin, in fact I am a particle of The Shitfer. *[Pause.]* In the Pre-Mythic days before the demise of Mert and Gert, when every spirit was a real thing, then––I a particle of The Shitfer––was united with the true and only Shitfer.

Now I must wander in this mythic spirit shape through the quaverings made by the giant Bump when the chasm opened and the hairy elephant sat on Mert and Gert. Ahem. . . Everything tends toward one-ness. *[Pause.]* As I find the other particles of The Shitfer we will join together.

When the True Shitfer is reconstituted into one Whole, then the Pre-Mythic days will come into being again. Then all will be real––as it was before. All will be real. Again there will be true problems and true loves. . .

[The GIANT PENGUIN takes one more step forward. Music begins for the song. The music is made by drums, viols, bells, and muted bagpipes.]

[Song.] AGAIN THERE WILL BE TRUE PROBLEMS AND TRUE LOVES. . .

[Half of the CHORUS OF NAKED STARS dances in from each side of the stage. The CHORUS joins the song.]

CHORUS:

AGAIN THERE WILL BE TRUE PROBLEMS
AND TRUE LOVES. . .

GIANT PENGUIN: *[Basso profundo.]* There will be rainbow bears and naked doves. . .

CHORUS: *[Tenor.]* There will be rainbow bears and naked doves. . .

GIANT PENGUIN: Then I. . .

CHORUS: *[With high kick.]* Then I. . .

GIANT PENGUIN: Shall dance upon immortal ice. . .

CHORUS: Shall dance upon immortal ice. . .

GIANT PENGUIN:

Everything and everyone will happen in a trice.
We shall supercede the age of lead
with the age that's nice.
There will be true problems and true loves.
There will be rainbow bears and naked doves.
The movements of the dimensions
shall be freed of the condescensions
that matter requires of them.

CHORUS: That matter requires of them.

GIANT PENGUIN and CHORUS:

There will be true problems and true loves.
There will be rainbow bears and naked doves.
The movements of dimensions
shall be freed of the condescensions
that matter still requires of them. . .
Everything and everyone will happen in a trice. . .
Everything and everyone will happen in a trice. . .

GIANT PENGUIN: We will march on Thebes and find the other particles of The Shitfer. . .! EVERYTHING WILL BE JOINED TOGETHER!

CHORUS: HURRAH!

[The TVs run on stage.]

TV ONE and TV TWO: Listen!

CHORUS: WE WILL MARCH ON THEBES AND FIND THE OTHER PARTICLES OF THE SHITFER! Everything will be joined together. Everything and everyone will happen in a trice!

[CHORUS is joined by drums and fifes. GIANT PENGUIN and CHORUS march off stage. TV ONE and TV TWO rush after them as they depart.]

TV ONE and TV TWO: Wait for us! Hey, wait for us Chorus of Naked Stars and Giant Penguin. Hey we wanna see The Shitfer too. Hey, wait. Hey, are there really going to be true problems and true loves?

End of Act One. Curtain.

Act Two

The Great Alchemical Act

Various loci in the vicinity of Thebes and Abyssinia. The time is the Mythic Era following the deaths of MERT and GERT.

––Scene One––

[GORF is flying through the dark sky. Clouds are passing. GORF is dressed in negligee and is dishabille. He carries the basket of writhing snakes. A wig drops from him as he flies.]

GORF: *[Blowing horn.]* TARAHHHHH! TRA-TARAHHHHH! TA-TA-ROOOOOOH! TAH-REEEEEEEEEEEEEEEEEEH!

OH JOYOUS FREEDOM! FREEDOM! Liberty! The Blind Dyke is far below and I wing towards Thebes. OH MERT, OH GERT, I'LL FIND THY

MURDERERS AND AVENGE THEE! The name of Gorf again shall ring proud and free above the ancient vineyards where the grape and olive swell. The secret tyrant murderers shall feel the slice of my wingtip on their brows.

When the Blind Dyke groped me––leaning to the sidecar where I was held helpless captive––I bashed her in the snoot with this snakey basket. As she drew back with her blind orbs whirling in her chthonic skull she missed the road. A cave appeared before us and the motorcycle careened within. I leaped into the air upon my pinions as the engined beast struck the stygian wall. There was silence there as I flew out––and clouds of smokey dust such as those oft seen from Aetna's top on an augured day.

[GORF zooms on––clouds pass. GORF blows horn: Trahhhh! Tarahhhh! *Etc.]*

It is me, GORF! ME! AND FREE!

[Blows horn.]

The ancient prophesy that proclaims: "Gorf of all shall bring the godlike to a glowing gleam" shall be proved this day. Stars are my friends and clouds are my citadels.

[Throwing snakes from basket.] Go, oh limbless brethren, tell the People of the Snake that Gorf, great Gorf, is free and asks their company in the revenge of Mert and Gert. Go! Go!

––Scene Two––

[Blackness. Then BLIND DYKE crashes across stage through thunderstorm. She travels in same direction as GORF. Her feet make huge stomping sounds. She cries out in wails of sadness and loss. She moves slowly against the crashing wind. MERT and GERT dash across the stage passing BLIND DYKE going in the opposite direction.]

MERT and GERT: *[In ghostly voice.]* WOOOOOOOOOOOOOooooo! *[They continue off.]*

BLIND DYKE: SORROW! SORROW! Oh, Mistress Gorfette––I will find you and you will love me yet. My chopper is smashed against the cavern wall–– and your dear little body is gone! I could not find you. Even where the stygian dark meant not a jot to me––for I dwell in swartness––I could not find you! I could not hear you breathe.

[Song.]
I COULD NOT FIND YOU!
I COULD NOT HEAR YOU BREATHE!
Even in the darkness I could not hear
your bosom heave!
Gorfette, Gorfette I'll hold your dear
little fingers yet.
In the cavern black, with only ears
to see the light,
and holding my breath
with all my thoughts contrite
I could not hear
I could not hear
I could not hear. . . Gorfette.
[Crashes of thunder––lightning effects.]

[Pause.] Back to Thebes! With the tribe of tribads I'll come back and find Gorfette. *[Pause.]* Strange, in the moment when I lay there stunned–– right after the chopper crashed into the stalagmite and before the sidecar tire blew––I heard wings of some cavern creature beating in the air. Oh well, perhaps it was some huge bat or owl. But mayhap I heard a horn blow in the storm outside the cave as I lay there! It must have been hallucination. . . On to Thebes. . . *[Wailing.]* Gorrrrrfette. . . GORRRRRRFETTE. . .

[MERT and GERT rush by going in same direction as BLIND DYKE. They rush past her without stopping.]

MERT and GERT: WOOOOOOOOOOOOOOOOOOO-OOOOOOOOOOOOOO! *[They rush off.]*

GERT: Hey Mert, just a minute. . . Wait up!

MERT: *[Off stage.]* WOOOOOOOoooooooooo. . .

BLIND DYKE: *[Exiting.]* GORFETTAAAAAAAAaaaaaa. . .

––Scene Three––

[Blackness. GORF flies through the night sky–– clouds pass. There is wind whistling and music.]

GORF: *[Throwing last of the wigs away.]* Away, oh signs of woman's nature. No longer do I need disguise! I GORF! I AM! I BREATHE! I'M FREE! OH MERT, OH GERT, I WILL FIND YOUR MURDERERS! I'll split the Bump and clamber down the path to Erebus to find the villains! *[Blows horn:* TARAHHHHH! *Etc.]*

——Scene Four——

[BLIND DYKE crashes across the stage going in direction of Thebes. She wails: "Gorfette. . . Gorfette. . ." *BLIND DYKE exits.*

TV ONE and TV TWO enter.]

TV ONE: Look, look, TV TWO, there is the Blind Dyke. Hey look at her run——right through the storm scene and everything.

TV TWO: Yes, wow, the Blind Dyke is really neat.

[The TVs stop center stage and stare into each other's eyes. They give each other a big kiss.]

TV ONE: Nummeeee, nummmeeee, nummeeee, numm. . .

TV TWO: Nummeeee, nummmeeee, nummeeee, numm. . .

TV ONE and TV TWO: *[Kissing.]* SMACK! SMACK! Whether there's weather or not!

[Pause. Storm goes away. Rainbows.]

TV TWO: The Blind Dyke is really neat.

TV ONE: Yes, she really is neat. I like Gorf too. Do you like Gorf as much as I do?

TV TWO: Gorf and the Blind Dyke are both really super neat.

TV ONE: Do you remember when we were eating the many-colored cereal in THE UR GORF DRAMA and Mert and Gert were reading the newspapers and Mert and Gert weren't saying anything to us and were trying to pretend that we weren't there because we remind them of Shitfer and they feel bad about Shitfer being all tossed around everywhere in Time and Space so that he is everywhere at once and that was right before Mert told Gert the story about how he went to DEEtroit with the money for the mortgage on the tractor?

TV TWO: Yes, and that was right before Gert told Mert all about how Shitfer had the cub troop over and they played hide-everything-and-find-it-again under the bedcovers with her and then they went home and told their daddies and their daddies came and saw Gert and one of them gave her a bottle of rose water (the one that is still there on the lampstand by the chair where she sits) and another daddy gave her two dollars and then Gorf came in blowing his horn and yelling about the Bump and the big hairy elephant came and sat down on top of Mert and Gert.

TV ONE: Yes, that's right.

TV ONE and TV TWO: Whether there's weather or not! *[They kiss.]* SMACK! SMACK!

TV ONE: Well, I wasn't really reading the back page of Gert's newspaper because we were eating the cereal and singing but I couldn't help noticing an article on the back about a prophesy regarding Gorf.

TV TWO: Oh wow, that's neat. A prophesy regarding Gorf.

TV ONE: Yes.

[TVs embrace and kiss: "Smack! Smack!"*]*

TV ONE and TV TWO: Nummeeee, nummmeeee, nummeeee, numm. . . Nummeeee, nummmeeee, nummeeee, numm. . . Whether there's weather or not! SMACK! SMACK! *[They look into each other's eyes.]*

TV TWO: What did it say?

TV ONE: The article about the prophesy regarding Gorf said that the prophesy said: "Gorf of all shall bring the godlike to a glowing gleam." *[Small pink smoke effect goes off.]* That's what the article said.

TV TWO: *[Clapping hands.]* Oh wow! *[Repeating.]* "GORF OF ALL SHALL BRING THE GODLIKE TO A GLOWING GLEAM." *[Small pink smoke effect.]* Oh, wow, that's really neat. That's really, really neat.

TV ONE: *[Proudly.]* "GORF OF ALL SHALL BRING THE GODLIKE TO A GLOWING GLEAM." *[Small pink smoke effect.]*

TV TWO: Neat!

TV ONE and TV TWO: *[Together.]* "GORF OF ALL SHALL BRING THE GODLIKE TO A GLOWING GLEAM." *[Larger pink smoke effect.]*

TV TWO: Shall we dance now?

TV ONE: The newspaper article on the back page said some other things too.

TV TWO: Neat! *[Clapping hands.]* What?

TV ONE: It said that Gorf is going to bring all of the particles of the shitfer back together and make one whole Great Shitfer again. I wanted to tell Mert and Gert about the article. I thought they might be interested. Then you and I got busy doing some other things and Gorf came in and Mert and Gert told their stories and the giant hairy elephant sat on them.

TV TWO: Oh that's neat. Wow!

[Music strikes up. TV ONE and TV TWO whip out straw hats and canes. They begin soft shoe song and dance.]

TV ONE: *[Dancing and bowing.]* I am TV ONE. . .

TV TWO: *[Dancing and bowing.]* I am TV TWO. . .

TV ONE and TV TWO:

We'll chase away your cares. . .
We can chase away your blues.
Life's a golden feather
blowing on the heather. . .

Your troubles are a fountain
bubbling from a mountain.
Little tiny flowers
growing through the hours
are higher than the towers
reflected in your eyes. . .
[Pause, bow, etc.]
. . .Are higher than the towers
reflected in your eyes. . .

[SHEPHERD ONE and SHEPHERD TWO crash on stage. They are running in great fear, stamping on heavy feet, and looking behind them. They careen into TV ONE and TV TWO and bowl them over. The dead sheep goes flying.]

SHEPHERD ONE: *[Rubbing his head.]* Heh! WHAT DUH FUCK!

SHEPHERD TWO: YEH, WHAT DUH FUCK?

TV ONE: *[Happily.]* Oh wow! Look at them!

TV TWO: Wow!

TV ONE and TV TWO: *[Embracing and kissing.]* SMACK! SMACK!

SHEP. TWO: *[To SHEP. ONE.]* HEY MAN, LET'S HURRY AND GET OUTTA HERE. MAN, DAT WAS REALLY TERRIFYING!

TV ONE: Dear sir, what terrifies you?

SHEP. ONE: *[To SHEP. TWO]* HEY MAN, LET'S GRAB DA SHEEP AND BEAT OUR FEET RIGHT ON OUT!

TV TWO: Shepherd, whither goest thou?

[The SHEPHERDS do not notice or speak to the TVs.]

SHEP. TWO: I'M OUTTA BREATH, MAN.

SHEP. ONE: IT IS A DAY OF BAD OMENS. FOIST WE SEES A ONE-ARMED MOTORCYCLIST RUNNING DOWN THE ROAD SPOUTIN BLOOD OUTTA HIS STUMP––AND HE'S BEING FOLLOWED BY A ONE-EYED MOTORCYCLIST ALSO RUNNING. . .

SHEP. TWO: *[Catching breath.]* Puff. Puff. YEAH. MAN, DAT IS NOT EXACTLY A GOOD OMEN BUT DE NEXT TING REALLY PUT ME IN A FRAME OF MIND FOR RUNNING.

SHEP. ONE: YEAH, SCARCELY DID WE SEE THAT WHEN WE BEHELD A GIANT GOD–– DE VULTURE GOD ALL BLACK AND SCAREY WIT WEBBY FEET––AND AROUND HIM WAS DANCING GIANT GLOWWORMS AND THEY WAS SINGING AND JIVING AND COMING DOWN THE ROAD RIGHT TOWARD US––AND DOING TINGS DAT LOOKED LIKE HIGH-KICKS!

SHEP. TWO: I TINK DEY IS AFTER US FOR RIPPING OFF DIS HERE SHEEP. . .

SHEP. ONE: DROP IT DERE, MAN. LET'S SPLIT. *[Drops sheep on stage.]*

[SHEPHERDS run off stage puffing.]

TV ONE and TV TWO: *[Kissing, embracing.]* SMACK! SMACK!

TV ONE: *[Noticing sheep.]* Look at that.

TV TWO: Hey, that is neat! Wow!

TV ONE: *[Shouting off stage.]* Oh, Shepherds, you forgot your sheep.

TV TWO: Shepherds, here is your sheep. . .

TV ONE and TV TWO: *[Running after SHEPHERDS and carrying the sheep.]* OH, SHEPHERDS, YOU FORGOT SOMETHING. . . Oh, wait for us. . . Hey, Shepherds. . .

[Blackness.]

––Scene Five––

[GORF is standing on a pinnacle overlooking a mountain range with Thebes visible in the distance.]

GORF: Strange that I should have this feeling. Odd that this thrill should send its tendrils through the woe that soaks my body. I cannot think except that the prophesy does enter into my mind. Can it be––is it possible––that this is the day the prophesy is to be fulfilled?

"GORF OF ALL SHALL BRING THE GOD-LIKE TO A GLOWING GLEAM."

[Small pink smoke effect.] And there were other strange words spoken. There were some intimations about a giant bird. . . There were whisperings about a woman who was not a woman. . . *[Pause.]* And yet I cannot grasp it! *[Pause.]* Oh well, this noble view thrills my soul with highest thoughts of pure revenge. ––Oh Mert, oh Gert! Would that you were here with me!

[GORF takes out his mystic horn and blows it. The mounts and vales re-echo.]

TAH-RAHHHHHHHH!
TAH-ROOOOOOOOOO!
Tah-reeeeeeee-tah-rahhhhhhh!

[Voices of MERT and GERT are tangled with the wind.]

MERT and GERT VOICES: WE SHALL GET THEE GORF! FOUL MURDERER!

GORF: Hark, do I hear voices on the wind? Oh no, it cannot be for I am here upon these solitary crags where there is no company. Here and only here can my spirit run free. I'll rest a while and then be on to Thebes.

[Meditative pause.]

Before I go I must sort the voices speaking in my soul. *[Long pause.]* There were strange auguries and proclamations connected with the prophesy. Around my cradle it was spoken that it would be I who saw the changing of the worlds––and then see them change back again. It was said that I would see the change from real to mythical. *[Pause.]* And that the death of friends would emblemize the change of reality to dream. An old crone suspected by many to be a goddess looked into my cradle and said that it would be I who would bring back the real in time of mythos. . .

BUT OH HOW STRANGE——EVERYTHING SWIRLS!

Ah, there it grows calm again. . . *[Pause.]*

Others said that I would be responsible for drawing strange creatures together to make a greater whole than existed before. But there are great wholes and there are large holes. To fill the whole with holes or the hole with big wholes might be a noble task——and surely it is made for one who is more than man. . . *[Pause.]* But could it be so for one who is more than woman? My senses twirl! My horn! My horn!

TAH-RAHHHH!

TAH-ROOOOOOOOOOH!

TAH-REEEEEEEEEEEEH!

[Peers down.] But hark! Strange things happen there below on the many roads to Thebes. Figures run one way and another! There is great movement. I must study what is happening.

[Huge red tentacles appear over the edge of the pinnacle behind GORF and they reach, menacing him. GORF turns.]

What?! GADZOOKS!

——Scene Six——

[A NAKED GIRL with fairy wings sits on a rock looking down into a stream. A bearded SCRIBE in a robe sits with his back against a rock——he writes with a feather pen.]

NAKED GIRL: And so. . .since I sit here almost every day on this rock halfway between Abyssinia and Thebes. . . *[Pause.]*

SCRIBE: *[Writing.]* ". . .halfway between Abyssinia and Thebes. . ."

NAKED GIRL: I cannot help noticing that the vibrations in the rock. . . No wait, say stone and not rock. . . in the stone are every day becoming more and more. . .

SCRIBE: ". . . every day becoming more and more. . ."

NAKED GIRL: Well, what I mean to say. . .

SCRIBE: "Well, what I mean to say. . ."

NAKED GIRL: No! No!

SCRIBE: No?

NAKED GIRL: Stop! Go back!

SCRIBE: O.K. ". . . in the rock, er stone are every day becoming more and more. . ."

NAKED GIRL: More and more like the jiggle-vibrations caused by the snooty-rootian. . .

SCRIBE: *[Carefully and slowly.]* ". . .snooty-rootian. . ."

NAKED GIRL: Snooty-rootian movements——they are more and more like the jiggle-vibrations caused by the snooty-rootian movements that happened right before. . .

SCRIBE: ". . .that happened right before. . ."

NAKED GIRL: . . .that happened right before the huge Bump when Time and Space were sqwunched together and the giant hairy elephant sat on Mert and Gert. . .

[SCRIBE jumps up and grabs hat.]

SCRIBE: I'm getting out of here!

[SCRIBE runs off stage.
Two WOODCUTTERS walk across stage conversing.
The NAKED GIRL with fairy wings watches from her rock as they pass.]

WOODCUTTER ONE: I tell you things is really different.

WOODCUTTER TWO: Yeah, it is all these intense vibrations and such.

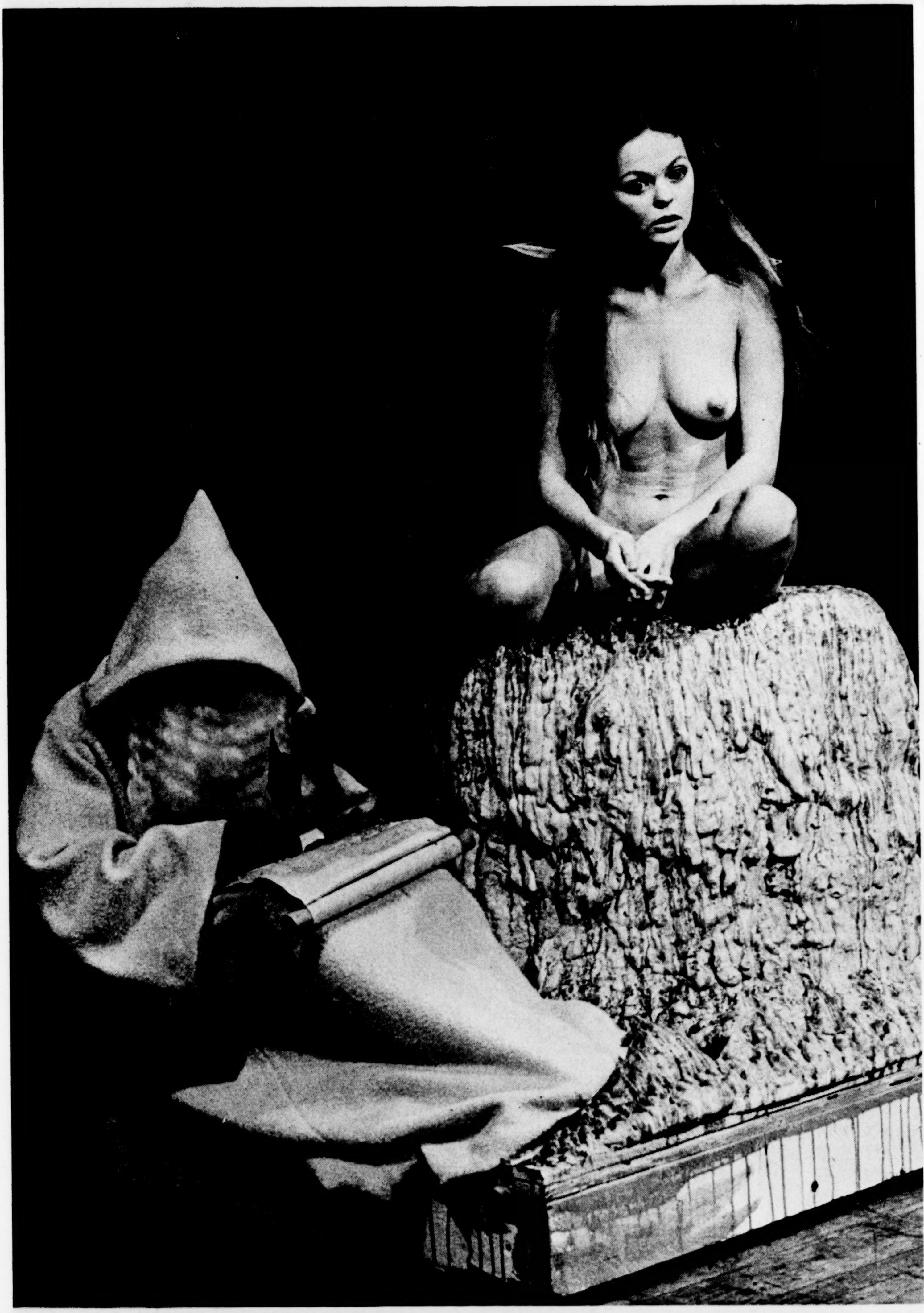
W. ONE: Something is gonna happen.

W. TWO: Yeah boy!

W. ONE: It feels just like it did before the big bump when Mert and Gert were sit upon by the giant hairy elephant.

W. TWO: Yeah.

W. ONE: Yeah.



W. TWO: You can even feel it right out here in the middle of nowhere.

W. ONE: Yeah.

W. TWO: Yeah.

W. ONE: Makes me nervous.

W. TWO: Yeah boy!

W. ONE: I'm scared.

[NAKED GIRL watches them exit as her fairy wings flutter. Blackness.]

––Scene Seven––

[GORF on the pinnacle fighting the MOUNTAIN OCTOPUS whose great red tentacles reach gropingly for him. GORF beats off the MOUNTAIN OCTOPUS with beautiful swordsmanship––using his mystic horn as weapon.]

GORF: TAKE THAT, FOUL MOUNTAIN OCTOPUS!

[Swordfights with the monster. The beast forces GORF to the precipice. With a deft stroke GORF drives the MOUNTAIN OCTOPUS back again. The fight continues. Through his superior gifts GORF ––at last––wins.]

GORF: WRETCHED BEAST!

[The creature is forced over the edge and plummets to the valley below. Falling it gives the death cry of the MOUNTAIN OCTOPUS.]

MOUNTAIN OCTOPUS: HAYEEEEEEEEEEEEEEEEE-e-e-e-e-e-eeeeeeeeee!

GORF: *[Meditatively.]* Strange things are happening. This is like the time right before the Bump––a time when the nocturnal mountain octopi came out by daylight. *[Pause.]* New philosophies are born on days like these. *[He falls into a dark study.]*

––Scene Eight––

[The BLIND DYKE stumbles across a landscape of bones in semi-darkness.]

BLIND DYKE: *[Crying out against the wind.]* GORFETTA-A-A-A-A-A. . . Hah, I must rest here in this charnel house of bones. Here where the vulture dwells. *[Seats herself on a huge bone.]* Always, always will I seek my dear Gorfette until I find her. *[Cries out.]* GORFETTE. . .! GORFETTA! When I return with the tribe of tribads we will find Gorfette and then we will dance and sing the Sapphic song and lisp our lesbic liturgies together. Ah, sweet and happy future. Ahh, Gorfette. . .

[Song.]

OH SWEET AND HAPPY FUTURE
WHEN OUR LOVE
COMES OUT OF CLOTURE. . .

[As the BLIND DYKE begins the dance that accompanies the song she steps upon one of the wigs that GORF had been wearing.]

Har, what is this strange, soft thing beneath my foot in this osseous landscape––in this foul spot that is the empery of vultures. A frightened thrill of apprehension jiggles through my body. I will not feel it! I will continue with my song. My senses do not recognize it! I am glad that my eyes cannot tell me. Just this once do I rejoice in blindness!

[The BLIND DYKE weeps and clutches the wig to her chest. She tries to sing but breaks down.]

[Song.]

WHEN OUR LOVE
COMES OUT OF CLOTURE. . .
OH, OUR SWEET AND HAPPY FUTURE. . .

OH EARTH BREAK OPEN AND WEEP! *[She sniffs the wig.]* I know this sweet beloved scent. I know this virgin musk. I recognize the odor of my dearest, dear Gorfette. *[Bellows with sorrow.]* EVEN WITH THE BLACKNESS IN MY EYES I GET A PICTURE IN MY MIND OF WHAT DID TRULY HAPPEN TO MY DEAR GORFETTE. OH, GODDESSES AVENGE ME! I'M REALLY MAD!

[Acting in pantomime.] My loveliest, dearest, dear Gorfette was flung clean from my sidecar. . . She lay dazed upon a ledge in the cavern like a

nurseling bat as I searched for her. The sound I heard of wings was that of a giant vulture searching for its foul dinner. . . Oh horror––it watched my dazed Gorfette! In my searching I walked out into the storm. The wretched vulture waited in the cave. Gorfette felt the lovely gleam of gentle consciousness return to her. As I wandered one way she wandered another into these hills. When she came upon this aerie of the villain Vulture King she fell with exhaustion. "Blind Dyke. . ." she cried, "Blind Dyke, I cry to you, take me to your place in Thebes. . ." And then the vulgar Vulture King and all his kindred fell upon her and left naught upon this hill except her precious hair. . .

[Song.]

THERE'S NAUGHT UPON THIS HILL
EXCEPT HER PRECIOUS HAIR.
Gone, gone is Gorfette!
The pretty little hand she had
that was made to throw confetti. . .
Gone, gone are the pretty little toes she had
that reminded me of spaghetti. . .
I kiss,
I KISS. . .
I KISS. . .
I KISS THIS PRECIOUS HAIR
AND BID GOODBYE TO ALL THAT'S FAIR!

[MERT and GERT cross stage––one from each side. They cry, "WOOOOOOOOOOOOOOOO-OOOoooooooooooo. . ."*]*

[SHEPHERD ONE rushes on stage.]

SHEPHERD ONE: *[Puff. Puff.]* HOLY GEE, ONE TING I WANTA DO IS GET OUTTA DIS PLACE AND AS FAR AWAY FROM THE GIANT VULTURE GOD AS I CAN GET! Woo-wee, DIS IS SCAREY!

[BLIND DYKE listens carefully, locates him, and leaps on SHEP. ONE. She crushes him under her. She grasps him by the throat and crotch.]

BLIND DYKE: GOTCHA!

SHEP. ONE: HEY, LEMME OUTTA HERE! HELP!

BLIND DYKE: ONE WIGGLE OUT OF YOU, AND I, THE BLIND DYKE, WILL TEAR YOUR CROTCH OUT AND ADD IT TO MY COLLECTION OF PICKLED WHANGS!

SHEP. ONE: HELP, LEMME GO! LEMME GO! ALL I WANT TO DO IS GET OUTTA HERE, MISS BLIND DYKE!

BLIND DYKE: LEAD ME TO THE VULTURE KING!

SHEP. ONE: ANYTHING BUT DAT! I IS RUNNING AWAY FROM HIM!

[BLIND DYKE gives SHEP. ONE a twist of her hand.]

BLIND DYKE: THERE!

SHEP. ONE: *[Screams with pain.]* ANYTHING BUT DAT! I WILL LEAD YOU TO WHERE I SAW THE VULTURE KING––OR GOD––OR WHATEVER HE IS!

[Aside.] Little does she know that my buddy Shepherd Two will soon catch up with us. We will croak the Blind Dyke together and sell her to the glue factory. Heh-heh.

O.K. you have persuaded me Blind Dyke. I will do it.

BLIND DYKE: So you won't give me the slip I will tie you to me with this rope.

SHEP. ONE: JUST AS YOU SAY, BLIND DYKE.

[Aside.] All da better so's I can slow you down till me buddy gets here with the axe.

BLIND DYKE: GET ME TO THE VULTURE KING PRONTO OR I'LL BEAT THE STUFFING OUT OF YOU!

SHEP. ONE: ANYTHING YOU SAY, MISS.

[Aside.] Heh-heh.

[BLIND DYKE and SHEP. ONE exit stage tied together with rope.]

VOICE OF BLIND DYKE: GORFETTA-A-A-A-A-A. . .I COME TO AVENGE YOU!

[Pause. Stage empty. SHEPHERD TWO runs onto stage puffing.]

SHEP. TWO: HEY, WHERE'S MY OLD BUDDY? Puff. Puff. *[Looks around.]* Look dere's his footprints. And some huge footprints beside his. It's a good ting I got me axe.

[SHEP. TWO runs off stage following footprints.]

[Pause. Stage empty. TV ONE and TV TWO run on stage.]

TV ONE: Oh, sirrahs, sirrah shepherds! Where are you?

TV TWO: They're really so neat!

TV ONE and TV TWO: Whether there's weather or not. *[They embrace and kiss.]* SMACK! SMACK!

[The TVs pause looking in each other's eyes.]

TV ONE: *[Looks down.]* Look! Footprints.

TV TWO: Yes! Wow! Footprints!

[The TVs run off stage following footprints.]

TV ONE and TV TWO: Hey wait! Wait for us! Wait shepherds, wait for us! It's us, TV ONE and TV TWO.

[Black.]

––Scene Nine––

[A roadside at the foot of the mountains. A sign pointing off stage says––Thebes. Pause. Enter GIANT PENGUIN with backpack and staff. He sings and is accompanied by the CHORUS OF NAKED STARS. The music is wander-music.]

GIANT PENGUIN:

[Song.]

JOY, JOY, JOY SUBLIME
––FEEL THE NEARING OF TIME.
JOY, JOY, JOY WITHOUT CRIME
––SENSE THE PASSING OF SPACE.
No longer do we need to pantomime
what our being does.
We can smile with our bodies
and garden with our face.
JOY, JOY, JOY SUBLIME
—NEARING OF TIME.
JOY WITHOUT CRIME
––PASSING OF SPACE.

CHORUS:

JOY, JOY, JOY SUBLIME
––NEARING OF TIME.
JOY WITHOUT CRIME
––PASSING OF SPACE.

[CHORUS leader steps forward:]
Speak, speak, oh Giant Penguin. Pray
tell us quick. Is today the day?

GIANT PENGUIN:*[Stepping front.]* Ahem. . . Yes, I accept that you call me "Giant Penguin." *[Pause.]* I have willingly assumed this guise as clothing to be worn in my search for the other particles of The Shitfer. For above all things you must remember. . .

[Short song.]

For above all things you must remember
that I the Giant Penguin
am a particle of The Shitfer.
I the Giant Penguin
am a particle of The Shitfer
––above all things that
is what you must remember.

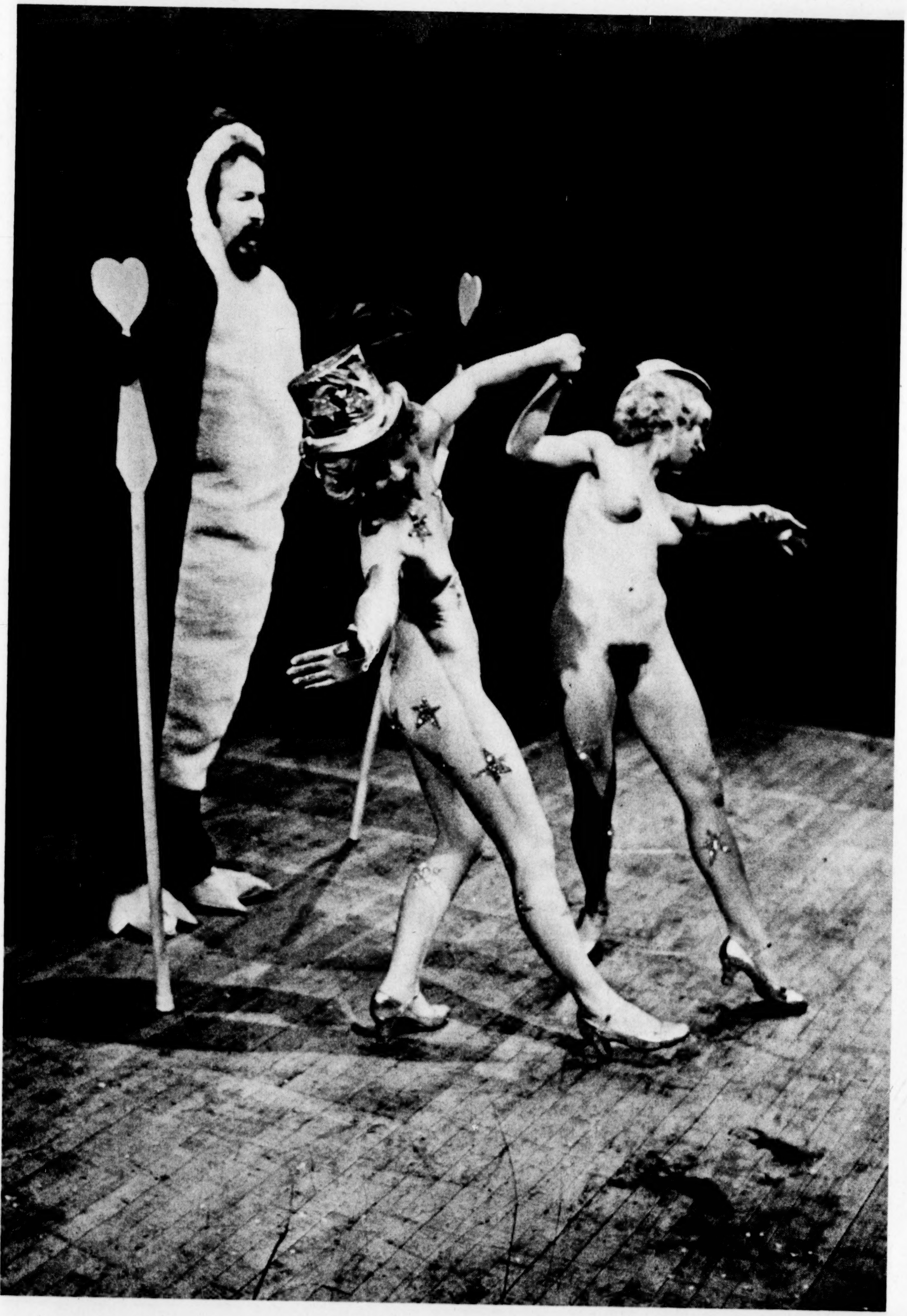
CHORUS:

Yes, yes, we understand.
Oh particle of The Shitfer,
Giant Penguin, pray
tell us quick. Is today the day?
[CHORUS high kicks and throws glitter.]
Yes? Yes? Yes?
Is today the day?
Answer us quickly––yeah or nay!

GIANT PENGUIN: Before the sqwunch of Time and Space, before the abyss was Abyssinia. . . *[Pause.]* Before the giant hairy elephant sat on Mert and Gert. . .*[Pause.]* In the olden times that precede these days of myth. *[Pause.]* When things were real. *[Pause.]* When the snooty-rootian movements still jiggled in all the bumps that matter is made of. . . Then. . . *[Pause.]* Then The Shitfer was one. Then The Shitfer was just one thing. Everything else was well, and whole, and happy, and the olive grew, and the duck fell down with a heart attack at the foot of the hunter.

CHORUS:

JOY––JOY SUBLIME
––NEARING OF TIME!
JOY––JOY WITHOUT CRIME
––PASSING OF SPACE!
Is today the day?
Yeah or nay?



GIANT PENGUIN: Ahem. . .*[Pause. Slowly.]* As a Particle of The Shitfer my answer is not an easy thing. As a giant penguin it would be simpler. Since pre-mythic meaning lies in being a piece of The Shitfer I will answer you in that voice of ancient meaningness of beingness that lies in matter. My words will not flatter your scattered stellar ears.

CHORUS: *[Apprehensively.]* His words will not flatter our scattered stellar ears?

GIANT PENGUIN: Ahem. . . *[Pause.]* There isn't no thing that happens away from the fact that it moves. If something jiggles then it IS. If it wiggles then it has got BEING by the tail and it can bite and it can smile.

CHORUS:

If something jiggles then it IS. . .
If it wiggles it has got being by the tail
and it can bite
and it can smile. . .?

GIANT PENGUIN: Ahem. . . *[Pause.]* Yes, if it does not do anything and it just dreams that it is––even if it dreams that it is flying around. . .

CHORUS: Even if it dreams that it is flying around. . .?

GIANT PENGUIN: Yep. . . Even if it dreams it is flying around then it is not anything! Not if it is dreaming. Nope! It is not a thing if it is dreaming. Because if something, whether it is alive or dead, is going to BE then it's got to BE and it can't BE dreaming. Can't be part of a myth––if you see what I mean.

CHORUS: It can't be part of a myth if you see what he means!

GIANT PENGUIN: IT HAS GOT TO BE REAL LIKE THE SHITFER––OR IT DON'T MEAN BEANS!

CHORUS:

IT HAS GOT TO BE REAL AS THE SHITFER
OR IT DON'T MEAN BEANS!
None of that myth and none of that guff
is half as good as touchable stuff!

GIANT PENGUIN: BECAUSE IT IS ALCHEMICAL AND MYSTIC!

CHORUS: YEAH, YEAH, THE TOUCHABLE STUFF IS ALCHEMICAL AND MYSTIC!

GIANT PENGUIN: THEREFORE. . . *[Pause.]* THEREFORE I CAN'T TELL YOU WHAT IS HAPPENING TILL IT IS GOING ON. . .

CHORUS: THEREFORE HE CAN'T TELL US WHAT IS HAPPENING TILL IT IS GOING ON.

GIANT PENGUIN: Once it is going on––when it has really started to happen––then it has got relationship to The Shitfer! Even when The Shitfer is splintered The Shitfer is a field. Like a lodestone––it draws itself together.

CHORUS:

Everything that's real has got
a relationship to The Shitfer.
Even The Shitfer, when it is splintered,
sets up a field
like a lodestone
to draw itself together. . .

GIANT PENGUIN: Ahem. . . *[Pause.]* So I stand here a Pre-Mythic particle of The Shitferian Oneness. I know that my existence is an action that draws all things together. . . *[French horns in the distance.]* As long as there is a purple hero, reality will last!

CHORUS: A purple hero? *[French horns in distance.]*

GIANT PENGUIN: Yes. Ahem. . . *[Pause.]* There's got to be a purple hero to keep The Shitfer one––even when The Shitfer is sailing towards Arcturus.

CHORUS:

A PURPLE HERO?
A PURPLE HERO––WHO COULD THAT BE?
[Pantomiming a search.]
Would we find him in a tidepool?
Would we find him in a tree?

GIANT PENGUIN: The purple hero is a catalyst. Without him even The Mighty Shitfer could fall apart and crumble.

CHORUS and GIANT PENGUIN:

[Song.]

WITHOUT THE PURPLE HERO
EVEN THE MIGHTY SHITFER
COULD FALL APART AND CRUMBLE.
Yet it is possible he's ignorant
and doesn't give a tumble
to the fact that he must act with tact. . .
[Pause.]

to pull The Shitfer back together.
To pull The Shitfer back together. . .

[BLIND DYKE staggers onto stage bound to SHEPHERD. She hurls herself about and gropes for landmarks.]

CHORUS: Holy moly, what is that?

[CHORUS reply:] I don't know but it is huge and blind and fat.

CHORUS: Golly sakes, there's two of them held together with a rope!

BLIND DYKE: WHERE'S HE AT? JUST POINT ME AT THAT VULTURE! I'LL TEAR HIM BEAK FROM CLAW AND USE HIS TAIL BONE FOR A TOOTHPICK!

SHEPHERD ONE: O.K. I MADE THE DEAL WITH YOU! NOW LEMME GO! I WANTA GET OUTTA DIS SCAREY PLACE!

BLIND DYKE: POINT ME AT HIM!

[SHEP. ONE points BLIND DYKE towards GIANT PENGUIN.]

HOW FAR IS HE?

SHEP. ONE: 'BOUT THREE AND A HALF YARDS. . .

[BLIND DYKE leaps on GIANT PENGUIN drawing SHEP. ONE with her.]

BLIND DYKE: *[Rage.]* YEEEEEEEEEEEEEEEEE! DEVOURER OF GORFETTE!

[GIANT PENGUIN is bowled over by the BLIND DYKE and by SHEP. ONE. The three make a writhing heap of bodies on the stage––they clamber on top of one another.]

GIANT PENGUIN: OOOOOOOOOOOOOF!

SHEP. ONE: YAHHHHGHH!

BLIND DYKE: GOTCHA! GOTCHA BY THE FEATHERS YOU ROTTEN DEMON BIRD!
BUT WAIT! *[Surprised and joyful.]*
I FEEL STRANGE AND RADIANT!

SHEP. ONE: ME TOO!
JEEZ, I FEEL STRANGE AND RADIANT!

GIANT PENGUIN: *[Grasping BLIND DYKE.]*

THIS IS ANOTHER PARTICLE OF THE SHITFER! *[His voice ecstatic.]* OH JOY!

CHORUS: *[Ecstatically.]* OHHHHH!

GIANT PENGUIN: *[He grasps SHEP. ONE and cries out.]* JOY! ECSTASY! HERE IS ANOTHER PARTICLE OF THE SHITFER!

SHEP. ONE: JEEZ. I FEEL NEAT! Wow!

CHORUS: *[Ecstatically.]* OHHHHHHHHHH!
Praise, praise to the gods for now on this day there are three particles of The Shitfer. Let us begin a solemn dance of thanksgiving.
[Bells of thanksgiving begin in the distance.]

CHORUS: *[Beginning dance.]* JOY, JOY THAT THERE ARE THREE PARTICLES OF THE SHITFER: THE BLIND DYKE, SHEPHERD ONE, AND THE GIANT PENGUIN ALL JOINED TOGETHER. . . IEEEE! OH! ALOHA-IEEE!

[SHEPHERD TWO runs on stage brandishing his axe. He runs right at BLIND DYKE and GIANT PENGUIN who are part of the ecstatic tableau with SHEP. ONE.]

SHEPHERD TWO: O.K., YOU MUDDERS! LEAVE GO OF MY BUDDY! IT IS DE MARBLE ORCHARD FOR YOU! *[He brings down the axe at the GIANT PENGUIN. The BLIND DYKE grasps the axe and stays it in midair.]*
OH HAPPINESS. WHAT IS DIS JOYFUL FEELING OF RADIANCE? SURELY I IS NOT ME BUT I AM SOMETHING MORE. HEY, I FEELS LIKE I BATHED IN A STEAMY HOLE AND HAD SATIN SHEETS––OR LIKE A LITTLE RIVER FILLED WIT MINNOWS! WOW!

GIANT PENGUIN: *[With solemn humming by CHORUS.]* IT IS A FOURTH PARTICLE OF THE SHITFER!
[Bells of thanksgiving.]

CHORUS: OHHHHHH! JOY, JOY THAT THERE ARE FOUR PARTICLES OF THE SHITFER: THE BLIND DYKE, SHEPHERD ONE, THE GIANT PENGUIN, AND SHEPHERD TWO––ALL JOINED TOGETHER. . . IEEE! OH! ALOHA-IEEE! Praise, praise this blessing with our solemn dance!

[MERT and GERT run in from opposite sides of the stage and collide in front of the tableau. They cry out "WOOOOOOOOOOO. . ." *as they run.]*

MERT: *[Colliding and falling over.]* Hey, Gert, it is you!

GERT: Mert!

MERT: Yes!

GERT: Where are we? I feel so strange!
Why it is almost as if we and The Shitfer was back together.

CHORUS: ALOHA-IEEE! ALOHA-IEEE! JOY! HYMNUS! IEEE!

GERT: Hey, look Mert, the snakes is dropping out of my hair! Yeah and the black ribbons is dropping from our limbs! Look, the snakes are dropping out of your hair too!

MERT: I feel good, Gert, but strange too! I feel better than I have since we died. Who is this Chorus though? And where are we? Look! Look!

[MERT and GERT stagger against THE FOUR PARTICLES OF THE SHITFER that stand in noble tableau.]

BLIND DYKE: *[Grasping GERT.]* MOTHER!

SHEP. ONE: *[Grasping MERT.]* FADDER!

SHEP. TWO and GIANT PENGUIN together: MOTHER AND FATHER--REUNITED WITH THE SHITFER!

CHORUS: ALOHA- IEEE! MOTHER AND FATHER ARE REUNITED WITH THE SHITFER! PARTICLES AND PARENTS JOINING TOGETHER. . .HAPPINESS! ALOHA-IEEE!

GERT: RADIANCE! OH JOY!

MERT: AT LAST! I REALLY FEEL NEAT! WOW! WOW!

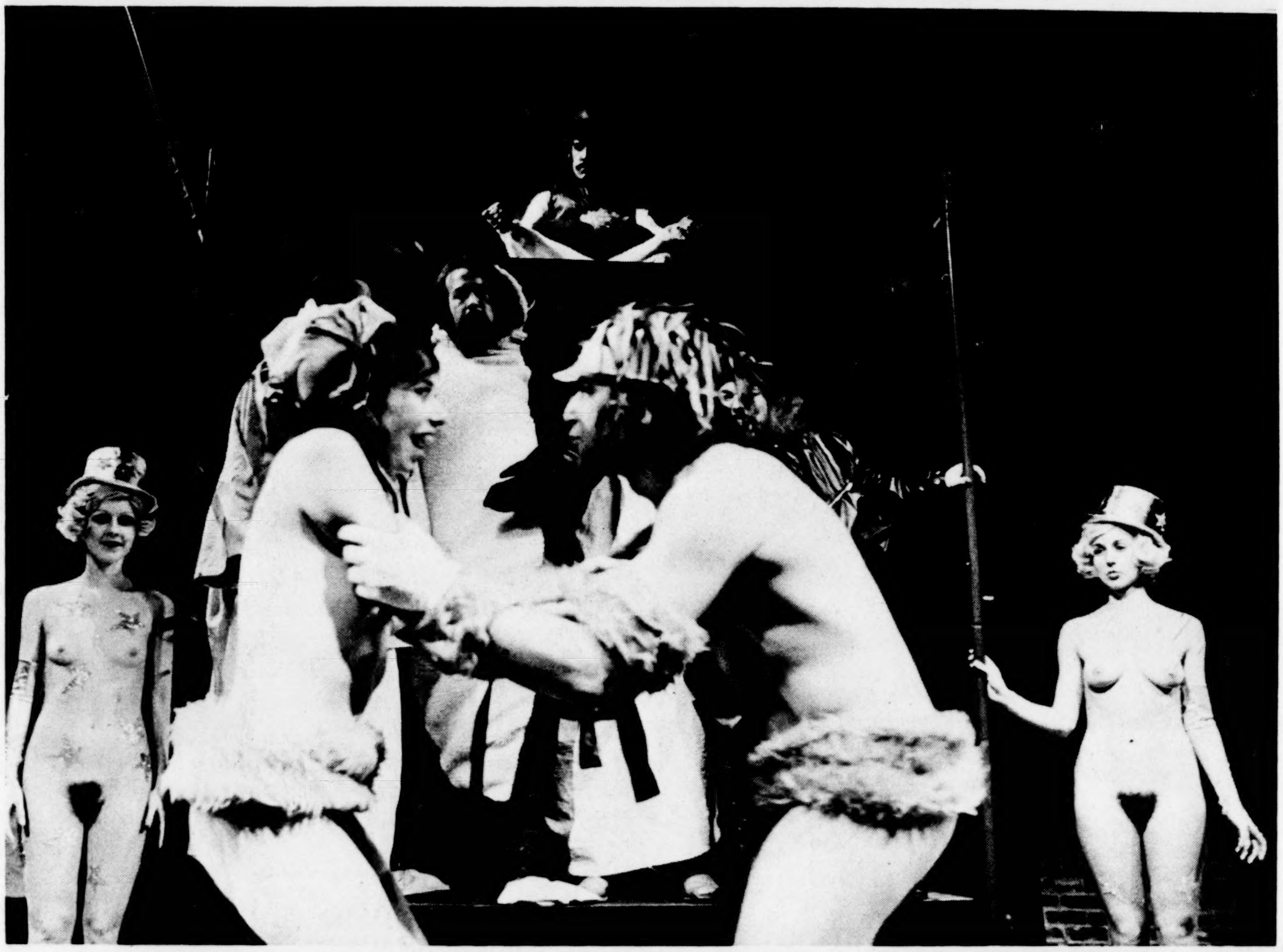
[MERT and GERT become part of the TABLEAU OF THE SHITFER.]

[TABLEAU OF THE SHITFER is a complex body-sculpture of beings in various united postures of ecstasy and transfiguration.]

[GORF flies in blowing his horn: TAR-AHHHHHHHHH! TAH-REEEEEEEEEEEEH. . .]

GORF: *[Pausing midair.]* Holy gee! It is many particles of The Shitfer––they are beings that previously I knew in their separateness and now they join together! Hmmmm. . . I must think about this. *[Blows horn.]*

CHORUS: *[Seeing GORF.]*



GORF, GORF, YOU'VE DONE IT AGAIN!
GORF, GORF YOU'RE EVERYBODY'S FRIEND!
YOU'RE THE PURPLE HERO!

VOICE: THREE CHEERS FOR GORF!

CHORUS: HURRAH. . .

[TV ONE and TV TWO rush in and break up the cheers. TV ONE and TV TWO are carrying the DEAD SHEEP between them.]

TV ONE: Wait, oh Shepherd, we have thy lost sheep.

TV TWO: Yes, here it is and it is really neat.
[TVs struggle across stage with the DEAD SHEEP.]

TV ONE: Hey, that is neat!

TV TWO: Yes, it is really neat. That is the Tableau of The Almost Completed Shitfer!

CHORUS: HYMNUS! ALOHA-IEEE! *[Chimes of thanksgiving. Madrigals of hums.]*

[The NAKED GIRL with fairy wings darts on stage and takes the DEAD SHEEP from the TVs as if it were weightless.]

NAKED GIRL: Here, I'll take that.

[The NAKED GIRL darts to the TABLEAU OF THE SHITFER and climbs part way up the body-sculpture holding the DEAD SHEEP above her head.]

CHORUS: *[Transported.]* HYMNUS! HYMNUS! ALOHA-AIEEE!

[GORF flies around blowing horn.]

GIANT PENGUIN: *[Full profundity.]* Ahem. . . *[Pause.]* With the addition of The Naked Girl with fairy wings and the Dead Sheep all particles of The Shitfer are hereby declared united. . .

CHORUS: ALL OF THE PARTICLES OF THE SHITFER ARE DECLARED UNITED!

GIANT PENGUIN: PRAISE TO THE GODS!

CHORUS: Praise! PRAISE!

GIANT PENGUIN: SOON THERE WILL BE THE TRANSMOGRIFICATION OF THE DIMENSIONS!

CHORUS: THERE WILL BE THE TRANSMOGRIFICATION OF THE DIMENSIONS!

GIANT PENGUIN: FIRST WILL COME THE UN-SQWUNCHING TOGETHER OF TIME AND SPACE.

CHORUS: THE UN-SQWUNCHING TOGETHER OF TIME AND SPACE!

GIANT PENGUIN: IT WILL COME IN THE FORM OF A GIANT BUMP!

CHORUS: GIANT BUMP!

[There is the huge amplified sound of the GIANT BUMP.]

GIANT BUMP: BUMP!!!

[There are many pink smoke effects, light effects, and waterfalls, and light projections. THE TABLEAU OF THE SHITFER writhes ecstatically.]

CHORUS: OHH! AHH! IT IS THE BUMP! IT IS THE MOMENT OF TRANSMOGRIFICATION!

GIANT PENGUIN: WITH THE REUNITING OF THE SHITFER COMES THE FINISH OF THE AGE OF MYTH.

CHORUS: DOWN WITH THE AGE OF MYTH! HURRAH FOR REALITY!

[A GIANT HAIRY ELEPHANT sits down on the stage covering the whole TABLEAU OF THE SHITFER with a huge woolly tarpaulin. The tarpaulin remains and covers the TABLEAU OF THE SHITFER which jiggles and trembles beneath the tarpaulin.]

[GORF flies about blowing his horn. There are flickerings of light. Rainbows and thuderstorms.]

CHORUS: THE GIANT HAIRY ELEPHANT SAT ON THE TABLEAU OF THE UNITED SHITFER AT THE PRECISE MOMENT OF THE UN-SQWUNCHING OF TIME AND SPACE FOLLOWING THE GIANT BUMP!

VOICE OF GIANT PENGUIN: *[From under woolly tarpaulin.]* BY GOLLY, DON'T WORRY ALL IS AS IT SHOULD BE!

VOICE OF BLIND DYKE: THIS IS DESTINY!

VOICE OF SHEP. ONE: IT IS DE WILL OF THE KNOWING ONES!

VOICE OF NAKED GIRL: Delight! Delight unending!

VOICE OF DEAD SHEEP: BAAaa-a-a-a. . . Baa-a-a. . .

VOICE OF SHEP. TWO: Heaven! HEAVEN!

VOICE OF MERT: I always told you it would be like this, Gert! This is better than DEEtroit!

VOICE OF GERT: You always did say that Mert! At last we are one with The Shitfer!

[The huge shape of the UNITED SHITFER begins to dance under the tarpaulin––it is more than ten feet tall.]

CHORUS: *[Transported, dancing all around the tarpaulin of THE SHITFER.]* JOY! JOY! ALOHA-IEEE! REALITY! REALITY; EVERYTHING REAL AGAIN; HYMNUS! PERFECT PERFECTION! *[CHORUS chants and hums. GORF flies over blowing horn softly.]*

TV ONE and TV TWO: Whether there's weather or not! SMACK! SMACK!

TV ONE: Hey, Gorf, the prophesy said, "Gorf of all shall bring the godlike to a glowing gleam."

TV TWO: Sure! We believe in you Gorf but remember it said: "Gorf of all shall bring the godlike to a glowing gleam." So where is the glowing gleam, Gorf?

TV ONE: Yes, where is the glowing gleam? We do not understand?

[As THE SHITFER dances, staffs are pushed through the woolly tarpaulin, and on the end of the staffs are old-fashioned lanterns and they glow in the dimming stage light and make patterns in the air as THE SHITFER wobbles and dances.]

CHORUS: *[In pure ecstasy.]* THE GODLIKE IS BROUGHT TO A GLOWING GLEAM! THE GODLIKE IS BROUGHT TO A GLOWING GLEAM! ALOHA-IEEE! HYMNUS! JOY! JOY! *[Etc. They dance around THE SHITFER.]*

TV ONE and TV TWO: SMACK! SMACK!

[GORF flies around blowing horn.]
[Waterfall effects. Rainbows. Projections. Movies. Smoke. Voices sighing in ecstasy.]

CHORUS:

GORF, GORF, YOU'VE DONE IT AGAIN!
GORF, GORF, YOU'RE
EVERYBODY'S FRIEND!
YOU'RE THE PURPLE HERO!

VOICE: THREE CHEERS FOR GORF!

VOICE: YES, THREE CHEERS FOR GORF!

CHORUS: HURRAH! HURRAH! HURRAH!

[GORF flies around blowing his horn while THE SHITFER dances with the lanterns and the CHORUS dances around THE SHITFER.]

GORF: WOW! THIS IS NEAT!

EVERYBODY:

[Song and dance.]

PUT YOUR FINGERS ON A STAR
or you won't get very far
but no matter who you are
YOU
GOTTA
LEARN
to take good care of yourself!
All the rip-offs and all the pelf
certainly can't be good for your health!

You're a little baby sweet,
when you see that everything is neat––
'cause
you
know
you gotta play fair.

All the universe is just a curl in your hair––
and baby bears are sleeping in caves––
and surely you know
you're nobody's slave.

Put your fingers on a star
and recall that you're brave––
everybody
you ever wanted to know
is right here
and you're nobody's slave!

Don't be afraid to take a little poke
'cause you know that reality is a joke.
Nothing can be sacred
or scared
unless it's part of the stairs!
And you know that everything––
every turtle dove, mastodon, and guitar––
are
a
part
of
your
affairs.
All the rip-offs and the pelf
certainly can't be good for your health!

PUT YOUR FINGERS ON A STAR. . .!

[EVERYONE dances. Waterfall effects, dry ice, projections, slides, films, lanterns, flashlights, CHORUS throws glitter and does high-kicks. GORF flies around blowing horn. TVs kiss. THE SHITFER dances and sways. Chimes of thanksgiving. . . Etc.]

(finis)

ACKNOWLEDGEMENTS

The first production of GORF was directed by John Lion and produced by the Magic Theater at The Firehouse in San Francisco--February 1974. The musical director was Daniel Orsborn; choreography --Patrese Lovecraft; sound design--Dan Dugan; scenery and lighting--Donald Cate; costume design--Regina Cate.

The cast in order of appearance: TV ONE--Freddy Mao; TV TWO--Cecily Yahya; MERT--Matthew Locricchio; GERT--Roberta Callahan; GORF--Marc Jacobs; CHORUS OF STARS--Barbara Ellis and Judy Feil; SHEPHERD ONE--Bruce Parry; SHEPHERD TWO--Gary Krakower; THE BLIND DYKE--Priscilla Alden; MOTOR-CYCLE OUTLAW ONE--Bruce Parry; MOTOR CYCLE OUTLAW TWO--Gary Krakower; THE GIANT PENGUIN--Doug Broyles; NAKED GIRL WITH FAIRY WINGS--Carol Anne Young; SCRIBE--Matthew Locricchio; WOODCUTTER ONE--Bruce Parry; WOODCUTTER TWO--Gary Krakower.

Musicians: Daniel Orsborn, Frank Lorca McGee, Donna Howe, Alan Young.

Production staff: Michael Wolf, Jim Robinson, Elizabeth Purcell, Terry Peck, Ray Garrett, Kathy Kleinheinz, Carol Anne Young.

Administrative staff: Carol Orsborn, Terry Down, Ron Scherl, Al Thacker, Barbara Ellis, Michele Miner, Mary Maywar.

Construction and costume crew: Sue Bogosian, Sally Shatford, Michael Derby, Brenda Sparks, Steve Lane, Gladys Svenson.

Understudies: John Nesci, Bill Sweatman, David Courier, Saun Ellis.

This play is dedicated to John Lion.

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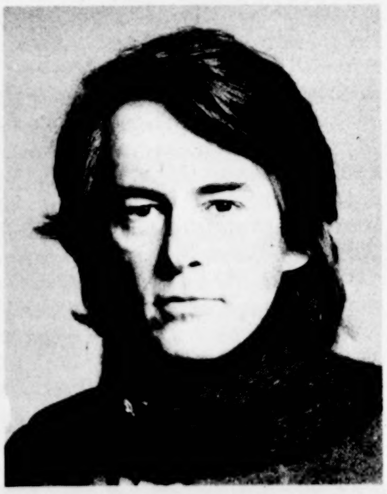

Photograph by Ken Howard

MICHAEL McCLURE
SEPTEMBER BLACKBERRIES

"Poetry and theatre are organisms and biological extensions of the artist," says Michael McClure. "My unusual line and shape of poems is a feedback between poems as living beings and knowledge of traditional shapes. I believe in inspiration. I am especially fond of wild flowers, mastodons, and stars." In *September Blackberries*, a collection of seventy-five of his recent poems, McClure demonstrates this "bio-alchemical" aesthetic with his usual prodigious verbal energy. Readers familiar with the work of the Beat Generation and the San Francisco Renaissance will recognize at once, in such long sequences as "The Skull," "Xes," and "We," the poet's characteristic typographic display, the breath-line that verges on the primal scream.

McClure's poetry has appeared widely in magazines and the underground press, and he has many volumes to his credit; best-known among them, perhaps, are *Hymns to St. Geryon* (1959), *Meat Science Essays* (1963), *Ghost Tantras* (1969), and *Star* (1970). His plays include *The Blossom, or Billy the Kid* and *The Beard*—an erotic duologue between Billy the Kid and Jean Harlow in a blue velvet eternity. Another book, *Freewheelin Frank, Secretary to the Angels* (1967), is the self-portrait of Frank Reynolds of the Hell's Angels, "as told to Michael McClure."

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Business

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The POINT/Penguin Books Publisher-Distributor Contract for the Whole Earth Epilog

BY LAWRENCE KLEIN

Larry Klein, POINT's lawyer since the beginning (1971), is a gentle character with a rare mix of legal competence and thorough-going honesty—the best lawyer I've known. POINT, a non-profit educational foundation in San Francisco, is Whole Earth's publisher—pays the bills.

While I was the agent on the deal, formal representative of POINT to potential distributors of the Epilog, *Larry did all the detail-work and wrote the contract. During negotiations we were ably advised by ex-lawyer Andrew Fluegelman, Managing Editor for Whole Earth. Our plan was to get good distribution to customers, a good financial deal for POINT, and hopefully write a Model Contract for home publishers dealing with big-time distributors. The agreement with Random House for* The Last Whole Earth Catalog*—written by them—had been amicable enough but had given us some technical problems including a $90,000 hassle over which billing (printer or bookseller?) Random was due an extra 5% of. Percentiles pack a wollop when sales get into the range of 1,300,000.*

It seems to us that the proliferation of home-grown publishing is one of the worthier trends in media these days. The home publisher has a single-minded commitment of time and attention that New York can never duplicate but can dilute if it gets the chance. We encourage New York to do what it does superbly, distribute, and not tamper with the bizarre uniquenesses of an out-of-house project. Hence this contract.

Last Fall Bill Barich (Diana Shugart's new husband) suggested only half-humorously that we announce in an ad in Publisher's Weekly *that Whole Earth would be in New York for a certain week, would hear bids and auction our goodies to the highest. A fine, horrible thought. Instead we quietly let-it-be-known that we had not settled on a distributor for the* Epilog, *and most people simply assumed we would gain a percentage point or two and stay with Random—underestimating our faithlessness. We got flirtatious notes from Harper, Stackpole, a few others, but no hard offers.*

Except Penguin. Now, the West Coast editor of Penguin is Don Burns, who was part of the original Catalog *distribution through Book People, and the southern California Sales Rep is Laura Besserman, former research-handler for the* Catalog. *They knew and trusted our wandering eye enough to induce Penguin Headquarters to okay a letter making an offer to distribute in exchange for retaining "only 20% of the gross amount billed" (gross billing is total receipts from booksellers, jobbers, etc.) Since Random was keeping 27½% for* Catalog *distribution, that got our attention.*

My own contract with POINT to edit the Epilog *included my acting as POINT's agent in negotiating a distributor (for editing and agenting, I would receive 15% of POINT's net income from* Epilog *sales—after print costs, production costs, etc. If a million copies sold, this would amount to some $100,000 spread over several years. I'm not paid for work on* The CoEvolution Quarterly.*) Now I was a happy agent. With the Penguin offer in hand I had some bargaining leverage on Random. I arranged for both parties to be in San Francisco the end of March 74 and asked Larry Klein to draw up a preliminary contract with blanks where the percentages would go. He and Andrew and I discussed at length what the contract should cover—including a few powers that we didn't want but another publisher might, such as control of advertising budget (we planned minimal advertising—single ads in book trade journals).*

The dealing was all over in five days. Saturday March 23, Larry, Andrew, and I had a fancy dinner in Sausalito with Don Burns and Don Passer, Penguin's head of sales. After polite dinner talk we adjourned to a dramatic setting at Fairbanks-Parker, the typesetting house adjoining our office. Darkened, empty old waterfront building. Crap-table lighting, blazing single shaded light over a table that was a recycled New Games Tournament sign on saw horses. Typist's chairs. Table between us.

"Here's our contract," we said, handing it over. "Here's our offer," they said. "On each $4 Epilog we sell, you get $1.65." Silence fell as we punched away at pocket calculators and they riffled through our legal masterpiece.

Extensive mutual clarifying determined that their offer was equivalent to retaining 23.6% of gross billing. "Let's look at these figures again, starting with $1.70 per book," said Don Passer. We did: 21.1%. "Did I hear another chip fall on the table just now? " inquired Andrew. Passer assured him he did.

We went into the various advantages and disadvantages of going with Penguin—a paperback house dealing mainly in classic reprints, a fraction the size of Random House (good or bad?), never handled a "best-seller," offering booksellers 50% discount on advance orders instead of the usual 40%, and eager—hungry, in fact, not just for our book but to enter a grander level in book distributing.

We discussed our arrangement with Random which had the distributor fronting half the costs of each printing. If Penguin didn't have to do that financing, said Passer, they could consider giving us $1.75 per book. Effectively: 19%: another chip. We concluded the three-hour session. They would talk to the Penguin home office. We would talk to Random House.

From Random came the head man, Editor-in-Chief Jim Silberman, straightforward and gentlemanly and intelligently bemused as ever. On the ride from the airport he commented how curious it was that the gas lines were longest where the cameras were— New York, Washington, L.A. At his hotel, the quietly super-ritzy Stanford Court, he remarked on the dominant characteristic of recent White House administrations: "Irrelevant muscle." Two words that summed up the 20th Century as far as I was concerned.

On Monday morn at the same location as before, less dramatic by day, we opened negotiations with a description, in bloody detail, of Penguin's offer. Jim seemed appalled. He inquired with strained politeness if we were seriously considering Penguin, who had, he wondered, how many salesmen total in America? "Eight," we replied. Jim's eyebrows rose. "Random House has fifty."

Was I really seriously considering Penguin, he asked me. It forced an answer I hadn't thought of: Yeah, my curiosity was roused about what those 50 salesmen were really worth, would sales be that much different? Unusual opportunity for a test. "Rather a crucial test," said Jim. From the soles of my feet came an answering shrug—what a luxury.

He asked if we were unhappy with Random. No, we said, but better numbers in the contract could make us happier. 25% of gross billing could be arranged, said Jim. That's an improvement over the old 27½%, said we, but still a long way from Penguin's 19%. Jim had a lot to say about our chances with Penguin, and some about Random, but the only improvement he could make on the offer was "25% for the first 250,000 copies, 22½% thereafter." Effectively, 23½% if a million copies sold.

On the way back to his hotel we asked if we'd heard his best offer. "What numbers did you have in mind?" he asked. "Better ones," we sighed. He would call New York, he said.

Decision time. I retired to Tiburon to a friend's empty apartment with gentle waves of the Bay plashing below the windows. Dutifully studying the numbers and details of the offers got me nowhere. So instead I held the whole question at a distance from my mind and lay around and just felt.

Surprises. I had all along expected that the Penguin offer would pry down the Random percentage a little way, and that would be it: we'd go Random again. But the feelings weren't going that way—every time I fantasized Penguin, something cautiously smiled. I figured that Passer would stay at 19% and front half the print costs if asked. I figured that Random would make only a slight improvement in its offer. Tentatively, barring major changes, I'd decided. Something had.

A cordial, if tense, breakfast with Silberman at the Stanford Court revealed that no change would be made in the Random offer. A call to Don Passer's motel confirmed that Penguin could agree to front half the print money and stay at 19%. I asked everyone in the Whole Earth office what they thought. Each said sagely, unenthusiastically: Stick with Random.

I called Penguin and told Don Burns, "Random is a sure thing. Penguin isn't. We'll try Penguin."

—SB

Agreement

This Agreement is entered into this 15th day of April, 1974, by and between POINT, a California non-profit corporation ("POINT" herein) and PENGUIN BOOKS, INC., a Maryland corporation ("Distributor" herein).

RECITALS

1. POINT is about to publish the WHOLE EARTH EPILOG ("the Work" herein). The Work will be published in two editions, a soft cover edition and a hard cover edition. Unless otherwise specified all references to "the Work" in this Agreement include both editions.
2. POINT desires Distributor to distribute and sell the Work and Distributor desires to perform such services.

NOW, THEREFORE, the parties hereto agree as follows:

I. Appointment of Distributor

Section 1.1

POINT appoints Distributor and Distributor hereby accepts appointment as the exclusive Distributor of the Work during the term of this Agreement.

Section 1.2

Neither party, its agents nor its employees shall under any circumstances be deemed to be agents or representatives of the other party for any purpose whatsoever, except as specifically set forth in this Agreement and neither party hereto shall have the right to enter into any contract or make any commitments in the name of or in behalf of the other or to bind the other in any respect whatsoever, except as specifically set forth herein.

II. Duties of Distributor

Section 2.1

Distributor shall perform all services in connection with the distribution of the Work, including, but not limited to, selling, billing, warehousing, shipping, collecting and return handling. Distributor will use its best efforts to assure the maximum distribution and sales of the Work.

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Many home-publishers prefer to handle printing completely on their own. With Penguin's record of quality in printing/binding and the cross-country distances involved, we jobbed the matter to them.

Section 2.2

Distributor shall supervise the production of the Work which services shall include, but not be limited to, supervising and arranging for all paper runs and bindings in accordance with specifications provided by POINT. POINT may, if it so desires, observe any or all of the steps in the production of the Work in order to assure that its specifications for the Work are met and that quality control is maintained.

The following tortuous section protects both parties in the delicate period of finally deciding the size and specs of the Work. We wanted time to research and insure good paper stock and binding techniques as well as latest possible decision-point for page length. Penguin wanted earliest possible specifications, to order (scarce) paper.

Section 2.3

Within thirty (30) days after POINT has provided Distributor with the specifications for the Work in accordance with Section 4.2 below, Distributor shall arrange for a printer and sufficient paper for an initial production run of 250,000 copies of the soft cover edition of the Work, such production run to commence sixty (60) days after the date POINT has provided such specifications or September 16, 1974, whichever is the later, or such other later date as POINT may select. Upon the completion of such arrangements, Distributor shall immediately so notify POINT in writing.

Distributor, upon reasonable notice from POINT, shall also arrange for the paper and printing for the second and subsequent printings of the soft cover edition of the Work (not to exceed 100,000 copies per printing) and for the initial production run of the hard cover edition of the Work (not to exceed 25,000 copies).

For initial planning purposes it is assumed that the Work will consist of 320 pages of a size similar to that contained in POINT's previous work, **The Last Whole Earth Catalog** but such assumption shall in no way bind POINT to that number of pages, or the size of the pages in its final specifications for the actual production of the Work.

Paper secured by Distributor pursuant to this Section shall not be used by it for any other purpose during the term of this Agreement without the prior written consent of POINT.

Most authors suffer at their portrayal in the ads—— either from excessive goopiness or insufficient budgeting/broadcasting. Who does the book should control the advertising, we say.

Section 2.4

Distributor shall pay all costs for the production and placement of a full-page advertisement of the soft cover edition of the Work in **Publisher's Weekly** and a one-half page advertisement of the hard cover edition of the Work in **Library Journal** provided, however, that the costs of producing such advertisements shall not exceed $200. POINT shall prepare such advertisements. Their form and content shall be subject to the approval of Distributor which shall not be unreasonably withheld. Any other advertising for the Work shall be at the sole discretion and expense of POINT.

Section 2.5

Distributor will list and describe the Work in the seasonal announcements of its books, using copy furnished by POINT, and will sell the Work upon such terms and conditions as it may determine subject however to POINT's right to determine the suggested retail price of the Work in accordance with Section 4.4 below.

Section 2.6

Distributor will distribute a reasonable number of review copies of the Work to a list of recipients recommended by Distributor and approved by POINT.

In the matter of selling rights to book clubs (sometimes an important distribution avenue) and to foreign publishers (not likely, catalogs don't translate easily) Penguin is in a better position to act as our agent than we are. Also in these sections we get some control of foreign prices——the **Last Catalog** *cost $6.50 in Canada (supposedly because "catalogs" have higher duty; not "epilogs," we trust).*

Section 2.7

Distributor shall use its best efforts, and is hereby authorized, to sell rights to the Work, on such terms as are customary in the trade, to book clubs. Distributor is hereby authorized to execute licenses with one or more such book clubs and to receive on POINT's behalf all sums due and to become due under such book club licensing agreements. The rights of any such book club (and the right of the Distributor to receive its share of the proceeds hereunder) shall survive the termination of this Agreement for the initial term of any such license with a book club.

Section 2.8

Distributor shall use its best efforts, and is hereby authorized, to sell right to publish the Work in all countries of the world other than the United States on such terms as are customary in the trade subject, however, to POINT's rights to determine the suggested retail price as set forth in Section 4.4 below. Distributor is hereby authorized to execute agreements with one or more third parties with regard to such foreign publication rights and to receive on POINT's behalf all sums due and to become due under such agreements. The rights of any such third party (and the right of the Distributor to receive its share of the proceeds from such agreements) shall survive the termination of this Agreement for the initial term of any agreement with regard to foreign publication rights with a third party.

Distributor warrants that the Work will be licensed for sale in Canada to its affiliated Canadian company (Penguin Books Canada, Ltd.) and that such licensee will agree that the suggested retail price for the soft cover edition of the work in Canada rounded to the nearest quarter dollar (Canadian), shall not exceed the United States suggested retail price by more than ten percent (10%), plus twice the amount, if any, by which Canadian duties and taxes on the Work exceed Canadian duties and taxes for a trade book of the same price.

This is half-printing-costs clause that re-entered the agreement on the last round, thank goodness. POINT will go in the hole to cover its costs as is.

Section 2.9

Distributor will advance, as such costs are incurred, fifty per cent (50%) of the cost of paper, printing, and binding for:

a) Not more than 250,000 copies of the soft cover edition of the Work, but in no event more than $125,000; and
b) Not more than 25,000 copies of the hard cover edition of the Work, but in no event more than $75,000.

If additional printings are made of the soft cover edition of the Work which Distributor is to distribute, Distributor will advance, as such costs are incurred, fifty per cent (50%) of the cost of paper, printing, and binding, but in no event more than $50,000 for each such additional printing (not to exceed 100,000 copies per printing) to be distributed by Distributor.

Section 2.10

It is anticipated that various production costs of the Work, including but not limited to paper, printing, and binding, will be billed to Distributor which immediately upon the receipt of any such statement shall send a copy thereof to POINT. Distributor shall also notify POINT of the extent to which Distributor is obligated to advance the costs of any such statement pursuant to Section 2.9 above.

> *An oversight, which Passer caught at the last minute—— who pays shipping from printer to Distributor?*

Distributor will also be billed for the cost of shipping the Work, when printed, from the printer to the Distributor. Each party hereto shall pay one-half (½) of such shipping costs. Immediately upon the receipt of any such shipping statement, Distributor shall send a copy thereof to POINT.

Section 2.11

Distributor will render to POINT, within forty-five (45) days after the end of each calendar quarter, reports of all shipments, billings, returns, payments and credits with regard to the Work. For purposes of this Section, all shipments and billings made during calendar year 1974 shall be deemed to have been made in the last quarter of such year. The reports required by this Section 2.11 shall set forth gross receipts, determined in accordance with generall accepted accounting principles, from which Distributor shall deduct:

a) its compensation in accordance with Section 3.1 below;
b) the unrecouped balance of any advances it has made with regard to the Work;
c) a reserve for returns. Such reserve shall be that percentage of the copies sold in the quarter for which the report is rendered which is equal to that percentage of the copies sold in the immediately previous quarter which were actually returned provided, however, if the actual returns in the immediately previous quarter were less than one per cent (1%) of the copies sold in such quarter, no reserve for returns shall be deducted in the quarter for which the report is rendered.
d) a reasonable reserve for liabilities asserted against Distributor by a third party with regard to the Work in an action filed in a court of general jurisdiction for which action POINT would have to indemnify Distributor pursuant to Section 6.2 below.

Section 2.12

Three of each year's quarterly reports required by Section 2.11 above shall be based solely upon the books of the Distributor. The fourth calendar quarterly report shall be based on Distributor's physical inventory and shall make appropriate adjustments to reflect such physical inventory. Which calendar quarterly report shall be based on physical inventory shall be at the sole discretion of Distributor, but once having been established by Distributor shall not be modified except with the written consent of POINT.

> *Here we have a penalty clause if Distributor fails to pay promptly.*

Section 2.13

Distributor shall remit to POINT with the reports required pursuant to Section 2.11 above, the amount due POINT pursuant thereto. In the event remittance is not made within forty-five (45) days after the last day of the calendar quarter in question, interest shall accrue upon the amount due POINT at the rate of ten per cent (10%) per annum from the last day of such calendar quarter.

> *POINT's audit of Random cost $4,000 and proved them clean and careful——they passed.*

Section 2.14

The reports required under Section 2.11 above shall be subject to audit by POINT or its duly authorized representative. Distributor shall cooperate fully with such audit provided, however, that it shall be given at least ten (10) days written notice of such audit and that there shall be no more than one audit in any calendar year. The cost of any such audit shall be paid by POINT unless such audit shows an error in the amount due from one party to the other in excess of $500 in which event Distributor shall pay the reasonable expenses of such audit.

If Distributor disagrees with the results of an audit performed by POINT or its authorized representative, the parties hereto shall jointly appoint an arbitrator to make such investigation or audit as he may deem appropriate to resolve the matter. The findings of such arbitrator shall be binding and final on the parties. The cost of such arbitrator shall be borne equally by the parties. If the parties fail to jointly appoint an arbitrator, the arbitrator shall be chosen in accordance with the rules of the American Arbitration Association.

Section 2.15

Distributor shall cause all copies of the Work warehoused by it to be insured against loss in the same manner and to the same extent as books published by it are insured. Within sixty (60) days of the date of this Agreement, Distributor shall notify POINT in writing that such insurance coverage has been arranged and shall provide a brief summary of the terms and conditions of such insurance coverage.

III. Compensation of Distributor

> *The crux. POINT gets $1.75 per $4* **Epilog***. Booksellers get about $1.84. Penguin gets the remaining 41¢ (19% of total billing, which is about $2.16 per book). Approximately the same percentages will apply to the hardcover edition.*
>
> *This good a deal for POINT is dependent on the enormous sales expected for the* **Epilog***, which also permits the low price. Other books will have other numbers.*

Section 3.1

As its entire compensation for its services rendered pursuant to this Agreement, Distributor shall receive:

a) all of the gross amounts received with regard to the soft cover edition of the Work during the term of this Agreement in excess of the sum produced by multiplying $1.75 by the number of copies of the Work sold. In the event the suggested retail price of the Work is other than $4.00 per copy then the figure "$1.75" in the preceding sentence shall be replaced by the figure produced by adding (or subtracting, if the suggested retail price is less than $4.00 per copy) to $1.75 forty per cent (40%) of the difference between the suggested retail price per copy and $4.00;
b) ten per cent (10%) of the suggested retail price of each copy of the hard cover edition of the Work sold during the term of this Agreement;
c) fifty per cent (50%) of all amounts received during the term of this Agreement with regard to the Work pursuant to agreements with book clubs; and
d) twenty-five per cent (25%) of all amounts received during the term of the Agreement with regard to foreign publications of the Work. For purposes of this Section "foreign publication" means publication in any foreign language regardless of where distributed and distribution of the English language edition in any country of the world except the United States, Canada, the United Kingdom and Australia/New Zealand.

IV. Duties of POINT

Section 4.1

POINT shall prepare the Work in final form for printing by the printer under the supervision of Distributor pursuant to Section 2.2 above. POINT shall be responsible for all corrections of proofs and for furnishing corrected negatives of proofs to the printer. All costs of printing the Work shall be borne by POINT.

Section 4.2

POINT shall provide Distributor in writing with the specifications for the Work which specifications shall be in a form sufficient to enable Distributor to perform its obligations pursuant to Section 2.3 above. POINT shall use its best efforts to provide such specifications at the earliest possible date.

Section 4.3

All property and inventory taxes with regard to the Work shall be paid by POINT. The inventory of the Work will remain the property of POINT.

Section 4.4

POINT will solely determine the suggested retail price for the Work in the United States, Canada, the United Kingdom and Australia/New Zealand except with regard to book club sales as provided for in Section 2.7 above. The suggested retail price for the soft cover edition of the Work shall not be less than $3.50 per copy. POINT shall advise Distributor of the suggested retail price for both editions of the Work not later than August 15, 1974.

Section 4.5

Upon the receipt of any statements described in Section 2.10 above, POINT shall remit to Distributor in sufficient time for such statement to be paid in accordance with its terms and without payment of interest or penalty, the amount due under such statement less the amounts required to be advanced by Distributor in accordance with Section 2.9 above with regard to such statement.

Section 4.6

POINT shall pay to Distributor any amount shown to be due by it to Distributor pursuant to a quarterly report rendered under Section 2.11 above. Such payment shall be made by POINT within ten (10) days after POINT receives such report or forty-five (45) days after the last day of the calendar quarter for which such report is rendered, whichever is the later. In the event remittance is not made within the time prescribed in the preceding sentence, interest shall accrue upon the amount due Distributor at the rate of ten per cent (10%) per annum from the date such remittance was due.

Payments required under this Section 4.6 shall not include sums advanced by Distributor pursuant to Section 2.9 above. Such sums shall be repaid to Distributor from POINT's share of proceeds from sales of the Work provided, however, any amount remaining due to Distributor from POINT for such advances shall be paid within forty-five (45) days from the end of the third calendar quarter in which sales of the soft cover edition of the Work are less than 15,000 copies.

Section 4.7

Promptly upon termination of this Agreement, POINT shall remove its inventories of the Work from Distributor's warehouses and shall pay to Distributor the unrecouped balance of any advances Distributor has made with regard to the Work, but in no event shall said payment be required before August 15, 1975, if such termination is at the initiative of Distributor prior to that date. POINT will accept and administer on its own premises all subsequent returns in accordance with the terms on which such copies of the Work were sold. POINT shall promptly bill Distributor for its share of payments made for such returns. Distributor will remit the payment due from it for such returns within thirty (30) days from the date of POINT's bill. Interest shall accrue on any sum unpaid after such thirty (30) days at the rate of ten per cent (10%) per annum from the expiration of such thirty (30) days.

Section 5.1

This Agreement shall be in force and effect as of the date hereof and it shall continue in effect so long as the Work is in print, provided, however, that either party may terminate this Agreement at any time on ninety (90) days prior written notice to the other party, but provided further, however, that no notice of termination may be given prior to October 1, 1974. If the party giving notice of termination is indebted to the other party, all sums due hereunder will be paid on or prior to the date of termination.

Section 5.2

Notwithstanding the provisions of Section 5.1 above, either party hereunder shall have the right to cancel and terminate this Agreement by giving notice in writing to the other party at least five (5) days in advance of the effective date of termination upon the occurrence of any of the following events:

a) the default or breach of any terms or conditions of this Agreement by the other party, provided such breach or default was not cured within fifteen (15) days after written notice of such default or breach had been given to the defaulting or breaching party by the other party;

b) Insolvency, bankruptcy, dissolution or liquidation of a party hereto, including institution of any proceeding by or against the other party under the provisions of any insolvency or bankruptcy law, or the appointment of a receivership over any of such party's property; or

c) discontinuance of its normal business by the other party.

Section 5.3

In the event Distributor terminates this Agreement for any of the reasons set forth in Section 5.2 (a) or (b) above, then Distributor shall have the right to retain all copies of the Work then in or coming into its possession as security for the payment of all sums due Distributor from POINT pursuant to the terms of this Agreement. Further, in the event of the termination of this Agreement by Distributor for any of the reasons set forth in Section 5.2(a) or (b), Distributor shall have the right to sell such copies of the Work and retain the proceeds thereof necessary to satisfy any indebtedness of POINT owing to Distributor pursuant to this Agreement and to remit the excess to such persons as may be legally entitled thereto.

Section 5.4

In the event POINT terminates this Agreement for any of the reasons set forth in Section 5.2 (a) or (b), it shall be immediately entitled to receive all funds with regard to the Work being held by Distributor which are in excess of the amount owed by POINT to Distributor. Distributor hereby acknowledges that sums held by it with regard to the Work are being held by it as Trustee for the account of POINT and that it has no interest in the funds received with regard to the Work except to the extent that POINT may owe it money pursuant to this Agreement.

VI. Miscellaneous

Section 6.1

POINT will add to its copyright notice of the Work the following:

"Distributed by Penguin Books, Inc., and in Canada by Penguin Books Canada, Ltd."

Section 6.2
POINT warrants that it has full power to enter into this Agreement and to enable Distributor to do and perform all the acts necessary or desirable in rendering its services hereunder, that the Work does not violate the right of privacy of any person; that it is not libelous or obscene and that it does not infringe upon the statutory or common law copyright, trademark or any other right of any third party. If a claim is asserted against Distributor inconsistent with the foregoing, Distributor shall first tender the defense of such claim to POINT. In the event that POINT, within fifteen (15) days after its receipt of the written notification by Distributor of such claim, does not choose to defend such claim by counsel of its choice, then Distributor may defend such action by counsel of its choice at POINT's expense. POINT will indemnify and hold harmless Distributor from any liability arising from such claim, including all expenses, court costs, reasonable attorneys' fees (in accordance with the provision of the preceding sentence), amounts paid in settlement and all other liabilities suffered or incurred in connection therewith, provided that POINT has been notified in writing of such claim and has had the opportunity, as set forth in the preceding sentence, to defend such claim through counsel of its choice and, provided further, that no settlement of any such claim shall be made without its prior written approval.

Section 6.3
All notices required or permitted to be given under this Agreement by one of the parties to the other shall be given by delivery in person, airmail postage prepaid or by telegram addressed to the principal office of the party as set forth below:

POINT
P.O. Box 428
Sausalito, CA 94965

Distributor
7110 Ambassador Road
Baltimore, MD 21207

Section 6.4
This Agreement shall be governed by and construed in accordance with the laws of the State of California.

Section 6.5
This written Agreement shall constitute the entire Agreement between the parties hereto and shall supersede any and all prior understanding, arrangements, promises, contracts, and agreements of any form or nature whatsoever, whether oral or in writing. No modification, alteration, addition or change in the terms hereof shall be binding on any party hereto unless reduced to writing and executed by the duly authorized representatives of each party.

Section 6.6
This Agreement shall inure to the benefit of and be binding upon the successors and assignees of the parties hereto provided that no party hereto may assign this Agreement, or any part thereof, without the prior written consent of the other party and any purported assignment without such prior written consent is void.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement in duplicate the day and year first above written.

POINT

By ____________________

DISTRIBUTOR

By ____________________

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POINT

P.O. BOX 99554
SAN FRANCISCO, CA 94109

You may legitimately wonder what POINT does with its money besides publish the Epilog *and this magazine.*

POINT was set up——with Last Whole Earth Catalog *income——to be an anti-foundation. Active rather than passive (directors find projects, not vice versa). Individual rather than committee (directors each have personal control over $55,000/year——when there's money——to spend on their own). Interested in originality. Prefering to give to individuals. Spend the capital and the interest. Three-year kick-out for all directors. Major criterion of successful grant: enjoyment.*

We've been medium successful. Here's who got money in the first two seasons. I'd advise against applying to POINT for grants. We're broke, down to where we'll have to borrow money to print the Epilog. *And directors would rather find good works than be found by them. As for me, I'm off the board this summer——forced retirement (my three years are up).*

I see that many of the projects and grantees have fed research and information back into The CQ *and* Epilog. *That seems right.*

—SB

DIRECTORS:

Stewart Brand, Whole Earth Catalog
Nathan Hare, The Black Scholar
Huey Johnson, The Trust for Public Land
Jerry Mander, Media Consultant
Mike Phillips, Glide Church
Richard Baker Roshi, Zen Center
Richard Raymond (ret.) Portola
Bill English (ret.), Xerox

OFFICERS:

Mike Phillips, President
Larry Klein, Secretary
Lois Britton, Treasurer
Richard Austin, Business Administrator

GRANT SUMMARIES - November 1, 1972 - September 30, 1973

Robert Chrisman - Improving the Ecology of a Black Village (Marin City)
Black World Foundation - Black Intellectual Retreat Discussion Transcription, Analysis, Multi-production and Distribution
E.J. Ashley - Institute for Soc. Devel. thru the Communicative Arts
Max Stanford – Developing a Black United Front Within Black Movement
Robert Allen - Third World Workers' Center
Women's Dance Collective - Third World Dance School and Child Care Center

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Black Cultural Festival - World Black and African Festival of the Arts
George Murray - Development of More Parent-Student Decision-making in Public Schools
College for Struggle - Community School for Development of Black Thought & Culture
Elementary Institute of Science - Community School Providing After-school and Saturday Science Lessons to Third World Students
Black Book Club - "Books Behind Bars" Program for Prisoners Across Country
Alternative Christmas Catalog - Two Full Page Displays, One for "All For One," The Other for the College for Struggle
Alternative Christmas Catalog - Production Costs
Charles Aikens - More Effective Third World Use of Media & Other Communication Outlets
Beverly Coleman - Community Health Workers Training Program
Nathan Hare - Consulting and Coordinating Third World Assistance Programs
Clancy Gordon - Western Montana Scientist Community for Public Information
Tom Devries - Results Study of Proposition 20 Coastal Zoning Act Court Injunction
Randy Mudgett - Processing of Film of Stockholm Environmental Conference
Council Grove Conference - Conference on Parapsychology Research
Mary Jean Haley - Study of the Marincello Project of Land Preservation
Richard Nilsen/Rosemary Menninger - Establishing a Center for Applied Ecology
Council on Economic Priorities - Establishing a West Coast Office
Bill & Helga Olkowski - Community Education in Urban Food Production & Waste Recycling
Life Forum/Charles Watson - Nevada Environmental Protection and Preservation
Eileen Hulse - Law School/Environmental Law
Environmental Law Society (UC Davis) - Moot Court Law Prize
Univ. of Alaska Earthweek Program - University Program Regarding Environmental Issues
Peter Berg - Publication on Earth Awareness
Patsy Evans - Study of Environmental Humor
Alan Chadwick - Land Use Training Program
Ecology Center/Bill Mitchell - Research into Transamerica Building Lighting Concept
Institute for Applied Ecology - Lee Wakefield Doing an Urban Gardening Manual
Zen Center - Wheelwright Center Operations Setup
Auroville Society - Auroville, India (Agriculture and re-forestation)
Gary Near - Public Interest Law/Corporate Social Responsibilities
Ida Strickland - To Encourage Greater Activity in Third World Funding
Jessie Potter - Formation of a New National Sex Organization
Turtle Island Foundation - Initial Funds for Operation
Margo St. James - Coyote, Prostitutes Collective
S.A.R. Project - Sexual Awareness Research
John Tepper Marlin - Organization of Council on Municipal Performance
S.F. Consumer Action - Consumer Awareness and Protection Research
Sherrie Resor - Overhead and Salary for Work on S.F. Consumer Action
Center for Environmental Action - Dick Sample Travel to Foresta Meeting
Maggie Rubinstein - S.F.S.I. Travel to Foresta Meeting
Human Sexuality Project - Dan Weiss, Univ. of Minnesota
Bill & Sherri Gross - Research with Respect to Corporate Change
Don Kuhn - Research Study on Death
S.A.R. Film Festival - Erotic Film Festival
Mexican-American Population Commission - Ida Strickland & Third World Funding
Harvey Karman - Research and Development of New Devices
Neal Metcalf - New Rural Community Forms
Zephros (Jim Kerr) - Future Conference
NACLA - Research into Overseas Ripoffs by U.S. Corporations
Center for Environmental Action - Organization & Implementation of programs
Venture (Ken Jacks) - Alternative Approaches to Societal Future in Health
Marc Lebrun - Information Utility
Amsterdam Law Project - Stanford Law Students Implementation of Research Findings
Council for Holistic Health - Organizational Funds, Research and Development
Society of Friends - Clare Garfinkel & Howard Fredrickson Study Grant
Santa Cruz Community T.V. - Community Access TV Setup Costs
Josephine Richardson - Feasibility Study Re Educational-Cultural Center, Whitesburg, KY
Rob Gilmer - Graduate Study at U.S.C.
Lulu Foundation - Educational and Sociological Research
Judi Johnson - Furthering Research into Wilderness Habits of Rocky Mountain Sheep
Northern Rockies Action Group (Bill Bryan) - Setting up NRAG as Legal Entity
NYINGMA Institute - To Facilitate Fund Raising Programs
Pete Sessions - Research and Preparation of Manuscript on "Symetrical Harmony"
Council for Holistic Health - Organization and Advanced Study on Project
Nature Conservancy, N.W. Office - Support of Vince Lee's Research
S.F. Zen Center - Ivonne Rand, Fund Raising
Life Forum - Reorganization and Continuation
Center for Corporate Priorities - Anti-Pollution Responsibility Program
Susan Halas - Public Interest Communications
Merle Goldberg - National Women's Health Coalition Set-up and Organization
Ginetta Sagan - Amnesty International for Political Prisoners
Paul Spong - Research on Killer Whale Life Cycle
Raindance - Publication of Prime Time
Indigena - Marie Helen Laraque: Research and Aid Indigenous Natives of Brazil
Robert Scheer (Wright Institute) - Research Into Activities of Multi-National Corps.
Friends of the Earth - Preparation for International Whaling Commission
Alternative Features Services - Office Expenses and Promotion
Joan Bradford - Assistance in Legal Case of Camille Mitchell
Dagne Crane, Bruce Terris, Sandy Davis, John Milton - Travel to Brazil Conference
Interpretive Ecologics - Wilderness Experiences for Minorities and/or Underprivileged
Advocates for Women - Affirmative Action Programs for Working Women
KPFA - For Their Good Work in Public Affairs Programing Thru Pacifica Foundation
S.F. Women Against Rape - For Reprograming Public and to Aid Raped Women
Bruce Terris - Public Interest Lawyer, Indigena (Brazil) Project
United Farm Workers - Funds to Inform the Members of Mass Media and Its Uses
Women's Action Training Center - Training in Organizing Tactics for Women
Keith Lampe - Ecology Center Research
Joanna Leary - Agent Grant, Study on Freeing Tim Leary
Loren Sears - Research and Filming of Indian Shamans in California
Steve Durkee - Aeronautic Training as Related to High Altitude Construction

New Alchemists - Incentive for "Interesting" research
ILS Labs - Incentive for "Interesting" Research
Zomeworks - Incentive for "Interesting" Research
(These Three Research Groups Have One Year to Present the Most Interesting Research: The One Doing So Getting a Bonus)

New Alchemy Institute - Alternate Energy (Food, Solar, Wind, Etc.) Research
Heinz Von Foerster - Introductory Cybernetics Book
Jane China Marks - To Encourage and Record the Techniques of Tibetan Bell Casting

TOTAL GRANTS..........$282,517

GRANT SUMMARIES - January 1, 1972 - October 31, 1972

Bill Goetz - Real-Life-Adventure Investigation of Emergency Services Across U.S.
Charles Watson - Survey and Help Classify Special American Wilderness Places
Jens Brøndum - Support his Welding of World-Wide Ecology and Peace Activities
J.D. Smith - To Build a Traveling Tool & Fixit Service
S.F. Zen Center Work Co. - Right-Livelihood Carpentry-Painting-Etc. Service
Stockholm Salon - Modern 18th Century Salon (Dinners for Formal Folk Who Should Meet Informally)
Life Forum - So That Joyful Noise Could Be Made At Stockholm Conference
Berkeley Salon - Modern 18th Century Salon
Loan to Project Jonah - To Initiate Program on Whale Killing Moratorium
Ted Bastin - Physicist Developing Mathematical Models for Paranormal Events
Bill Bryan - Environmental Activist in Montana, Wyoming and Idaho
Janet Flegal - More Child Care Availability at Lower Cost for More Women
Larry Sleizer - Associate Counsel for A.C.L.U.
Greg Archbald - New Form Approaches to Improve National Land Policy
James Morgan - Biologist Doing Research on Big Horn Sheep and Land Use
Unify - Urban Nature Institute for Youth Combining Art and Ecology in Outdoor Setting
Phillip Wallin - Study of the British National Trust in England
Wheelright Center - Cover Immediate Needs on Conference Planning for Quiet Communication Opportunities
Center for Environmental Action - Community Organization Regarding Environment
Goodworks Collective - Women's Program Seeking Enlightened Society & Equal Opportunities
Greg Archbald - Estate Tax Research
Environmental Resource & Analysis Center (Univ. of Montana)-Conference Re The Establishment of Nonprofit Land Planning Agency
Barbara Lander Bell - Comparative Study of Swedish and U.S. Land Policy
Nongovernmental Liaison Committee - Follow-up Meeting Planning to Stockholm Conference
Sandy Demarest - Assistant Editorialship of Training Manual for Environmental Generalists
Sierra Club Legal Defense - Legal Aid for Environmental Issues
Mats Segnestam - Director, Nonprofit Conservation Organization in Sweden (U.S. Travel)
Alan Chadwick - Urban Garden Training Program.
Henry Goetz - Study of Acquisition of Development Rights as a Less Than Fee Acquisition Technique on the Blackfoot River in Montana

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Harvey Neese - Study of Erosion and Loss of Wildlife Habitat in the Palouse Area
Alice Tepper Marlin - Educational Activism in Corporate Responsibilities Field
Toni Ayers - Founding of San Francisco Sex Information Project
Maggie Rubenstein - Founding of San Francisco Sex Information Project
Carolyn Smith - Founding of San Francisco Sex Information Project
San Francisco Sex Information - Project to Make Accurate Information on Human Sexuality Available to the Public
Selma Monsky - San Francisco Community Survey
Hugh Schwartz - San Francisco Community Survey
Peter Sherrill - San Francisco Community Survey
Institute for Research in Social Behavior - S.F. Community Survey; a Project to Develop "Community" in a Large Urban Area and Bring New Democratic Forces into Governmental Processes
Joan McIntyre - Creation of Project Jonah Organization to stop Whale/Dolphin Killing
Norma Whittacker - Public Interest Public Relations
Marijuana Educational Fund - Publication & Distribution of Information Re Marijuana
Esalen Institute School - Experimental School for Staff Children
Public Advocates - Study and Investigation of Legal Action Against War
Herbert Kutchins - Study of Police Killings
"Earthlight" - S.F. Ecology Center (Children's Ecology Publication)
Women's Legal Center - Legal Counseling and Training for Women
Barbara Richter - First People's Television News Program
Susan Halas - Study on Community Access to Videotape
Fred Moore - Exchanging Money and Information Within Informal Communities
Diana Shugart - Research Into Women's Careers, i.e., Small Publishers
Amsterdam Summer Project - Stanford Student-organized Project Conducting Several Large Scale "Impact" - Litigation Campaigns Related to Capital Punishment and Racial Desegregation in Public Schools
Hilton Braithwaite - Photographic Student Assistance Grant
S.F. Center - Development of Fund Raising Program
Ron Jones - Revenue and Information Creating Project for Zephros Educational Community
Malcolm Margolin - Completion of Conservation Training Manual for High School Students
Life Forum - Program Development, Stockholm Conference Expenses, Steam-driven Auto
Agape - Projects Encouraging: Street Music; Novel Money and Banking Programs; Auto Repair Cooperative and Similar "Briarpatch" Organizations
Ron Bevirt - Data Gathering Project on a Sub-Marginal Farm
Council for Economic Priorities - Corporate Responsibility Educational Activism
Demise Party - Experiment in participatory granting

TOTAL GRANTS..........$361,024

Supplement to the Whole Earth Catalog

The CoEVOLUTION Quarterly

For Booksellers and Newsstands

The CQ

The following wholesalers are currently distributing **The CoEvolution Quarterly**:

A & A Distributors
Mear Road
Holbrook, MA 02343
(617) 767-3000

Interstate Distributors
480 Neponset Street
Canton, MA 02021
(617) 828-6780

RPM Distributors
5862 Wicomico Ave.
Rockville, MD 20852
(301) 881-7225

Ingram Book Co.
347 Reedwood Dr.
Nashville, TN 37217
(615) 889-3000

Book People
2940 Seventh St.
Berkeley, CA 94710
(415) 549-3033

Ray Surguine & Co.
3640 Walnut
Boulder, CO 80302
(303) 442-5323

Raymar Northwest
1820 130th St. NE
Bellevue, WA 98004
(206) 455-5792

48 States News
1460 Williams Hwy.
Grant's Pass, OR 97526
(503) 476-7828

Serendipity Couriers
Bayhaven Gate 5
Sausalito, CA 94965
(415) 332-2250

L-S Distributors
1161 Post Street
San Francisco, CA 94109
(415) 771-0330

If for some reason you run into difficulty, please let us know. Contact us if you are interested in distributing **The CQ**, or wish to order it in quantities of 50 or more. **The CQ**, Box 428, Sausalito, CA 94965.

Whole Earth Epilog

Penguin Books, distributor of the **Whole Earth Epilog**, is offering 50% discount on advance orders. The **Epilog**, 320 pages, $4, same format as **The Last Catalog**, will be available in October 1974. First printing will be 350,000. The **Epilog** is effectively "Volume II" to **The Last Catalog** and does not replace it. Both books will also be available in hardcover in October, prices not set yet.

The Updated Last Whole Earth Catalog

Due to delays at Random House, **The Updated Catalog**, scheduled for June, will be available in August 1974. Still 448 pages, still $5, with 3000 updated corrections.

Larry Klein, author of Point-Penguin Contract.

Credits

Editor Stewart Brand
Managing Editor Andrew Fluegelman
Office Diana Barich
Copy Editor Pam Cokeley
Research Traffic Andrea Sharp
Research Doris Herrick
Typesetting Evelyn Eldridge, Joe Bacon
Paste-up Susan Roth, Beth Fairbanks, Andrew Main, Steve Leaper, Kathy Borsodi
Camera Andrew Main, Andrew Fluegelman, Stephen Cooper
Illustrations Steamboat, Dan O'Neill, Joan Mumper, Albrecht Durer
Cover Art David Miller
CoEvolution logo David Wills
Subscriptions Robbie Welling
Printer Fricke-Parks Press, Fremont, CA

Some of these are new faces, some just new names. Diana Barich was Diana Shugart before she married Bill Barich this April. Evelyn Eldridge was married and named Evelyn Goslow when she typed The Last Whole Earth Catalog *in 1971. Bob Parks of Fricke-Parks Press was at Nowels Publications when he printed all the Whole Earth Catalogs and Supplements.*

Costs

Summer CQ production, May 1 - June 15, 1974:

Office (rent, utilities, phone, postage, travel, supplies)	**$1,000**
Staff salaries	**6,000**
Contributors	**1,900**
Production supplies	**1,000**
Printing and binding	**4,800**
	$14,700
1st printing, June 74	**10,000 copies**
2nd printing, July 74	7,500 copies

So the unit cost is $1.47/copy. We break even on subscribers and lose 52 cents per copy on newsstand sales.

Spring '74 CQ

Of the 5000 copies printed of the first issue of the CQ, approximately 800 were used for promotion and review, 3300 were sold for newsstand and bookstore distribution, and 900 were mailed to subscribers. (By June, the first issue had "sold out.") Sales to wholesale distributors netted approximately $.95 per copy (including shipping.) About 600 of the 3300 copies "sold" had been paid for as of June 15.

The cost of processing a new subscription (recording information on computer cards) and addressing and mailing the first issue was approximately $.30 per subscription. As a non-profit publication, it costs 11 cents per pound to mail at Third-Class rates while our Second-Class mailing permit is pending.

(We have set up our own subscription fulfillment system using our own staff and the public computer facilities at Stanford University, rather than farming it out to an independent professional mailing house, partly to try to keep in closer touch with our subscribers and partly to see whether doing it ourselves can be more economical. So far, it looks encouraging, despite some expected conceptual start-up hurdles, and an unexpected broken arm. We hope to publish a "how-to-do-it-and-not-do-it" report, including our computer program, in a future issue of **The CQ**.)

We also spent about $200 to purchase a list of 3000 college bookstores (addressed, self-adhesive labels from R. R. Bowker Company, New York) and print and mail a flyer announcing **The CQ**.

Subscribing to The CoEvolution Quarterly

Here's the absolutely most efficient way for us to send you the next four issues of **The CQ** at a 25% saving off the newsstand price:

1. Write your name, address and zip code on a 3" x 5" index card (or other paper).
2. Indicate on the card the issue (Summer, Fall) with which you would like to start your subscription.
3. Mail the card, and a check for $6, payable to "The CoEvolution Quarterly" to:

The CQ
558 Santa Cruz
Menlo Park, CA 94025

(We also welcome your comments, suggestions, reviews, reports and well-founded rumors. Please write them in a separate letter, and send it to us at Box 428, Sausalito, CA 94965.)

Whole Earth Truck Store

Established 1968, the Whole Earth Truck Store in Menlo Park continues to flourish and provide mail-order service for books and some other tools listed in **The Last Whole Earth Catalog** and forthcoming **Epilog**. (This is for the service of readers; the store is not financially connected to POINT). Store hours are 9:30 am - 6 pm Monday - Saturday, Thursdays open till 9 pm.

Whole Earth Truck Store
558 Santa Cruz Avenue
Menlo Park CA 94025
(415) 323-0313

The Fall '74 CQ

The Black Panther Party of Oakland, California, will guest-edit the entire Fall issue of **The CoEvolution Quarterly** on the theme of community organization and urban survival. It will be produced at the offices of **The Black Panther Intercommunal News Service** and edited by David DuBois, with Huey Newton, Bobby Seale, Elaine Brown, et al.

Potential contributors should contact The Black Panther, 8501 East 14th St., Oakland CA 94621, (415) 638-0195. Subscribing to the excellent paper (a weekly) costs $8.75/yr at the same address.

"COEVOLUTION"

The term was introduced in 1965 by Paul Ehrlich and Peter Raven in their study of the predator-prey relationship of caterpillars and plants. They found that the eaters and the eaten progressively evolved in close response to each other) coevolved. (Some plants developed defensive alkaloid poisons. Some caterpillars acquired a taste for alkaloids. The plants diversified wildly. The caterpillars diversified with them. What evolved really was the relationship, stably dynamic, unpredictable and sure.)

It seems that all evolution is coevolution. The beauty of the term is what it adds to the concepts of ecology. Language such as "preserving the ecology" suggests something quite perfect— static, knowable, oriented backward, unwelcoming to human foolishness... unreal. Ecology is whole system alright, but coevolution is whole system in TIME. The health of it is forward— systemic self-education which feeds on constant imperfection. We coevolving watchers and meddlers are not left out of it.

Ecology maintains.
Coevolution learns.

A COEVOLUTIONARY GAME:
How the Acacia Got Its Teeth

In eastern Mexico live a variety of acacia shrubs and marauding ants. Most acacias have thorns, bitter leaves, and other protection against a hungry world. One, the "swollen thorn acacia" learned to encourage a species of ant to monopolize it as a food source and kill or run off all other predators. Enticements gradually included nifty water-proof swollen thorns to live in, handy nectar fountains, and special ant-food buds at the leaf tips. The ants, whose interests increasingly coincided with the acacia's, learned to inhabit the thorns, patrol the acacia day and night, attack every acacia-hungry organism, and even prune away invading plants such as vines and tree seedlings that might shade Mother Acacia. The acacia gave up its bitter leaves, sharp thorns, and other devices and now requires the acacia-ant for survival. And the ant colonies can no longer live without the acacia. Together they're unbeatable. Moral?Useful now is necessary later.

This splendid study by Daniel H. Janzen of coevolved mutualism appeared in Evolution, Sept. 1966. Sent by Paul Ehrlich and Richard Holm.

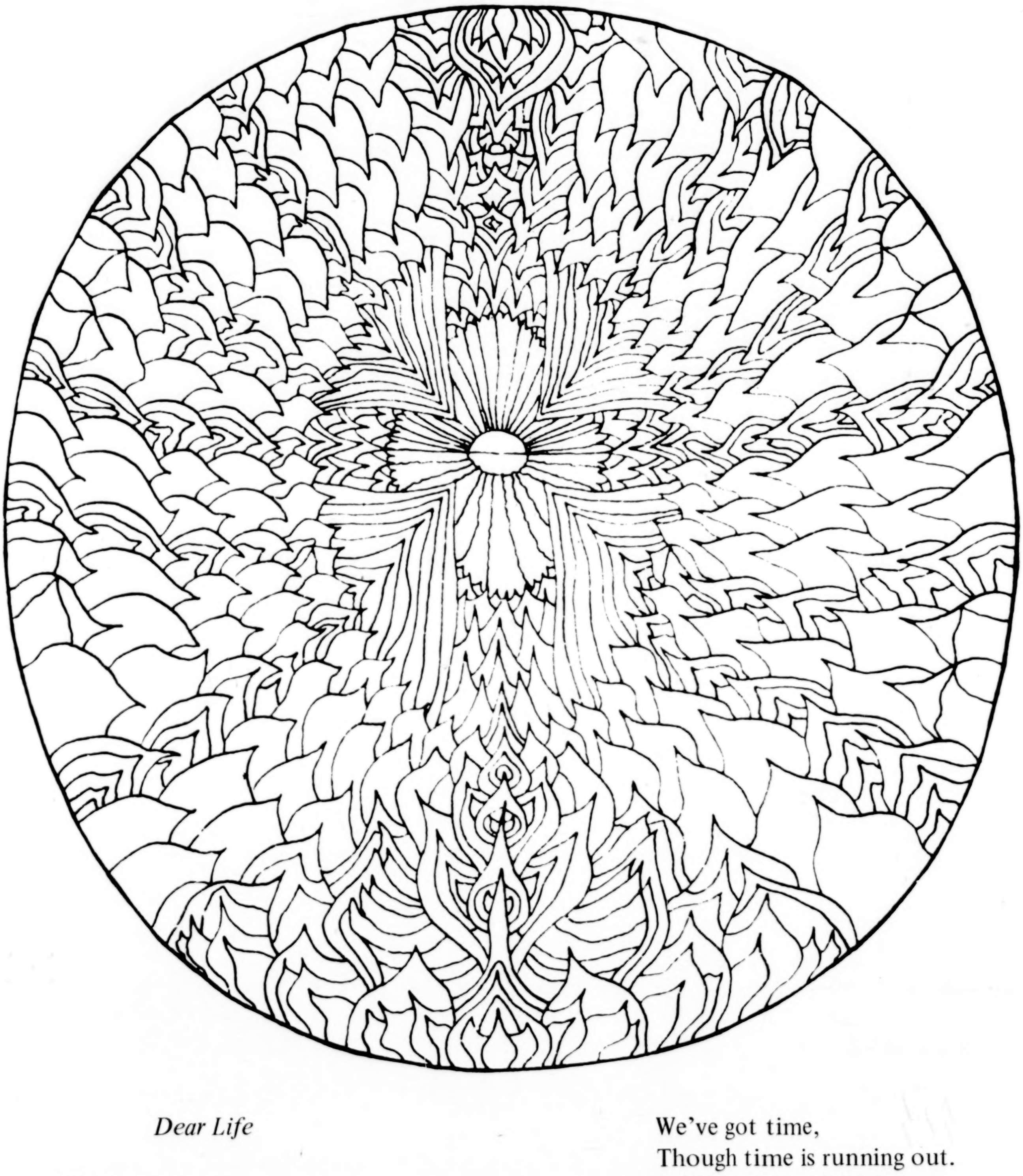
A COEVOLUTIONARY GAME:

A COEVOLUTIONARY GAME:
Who's Got the Cardiac Glycoside?

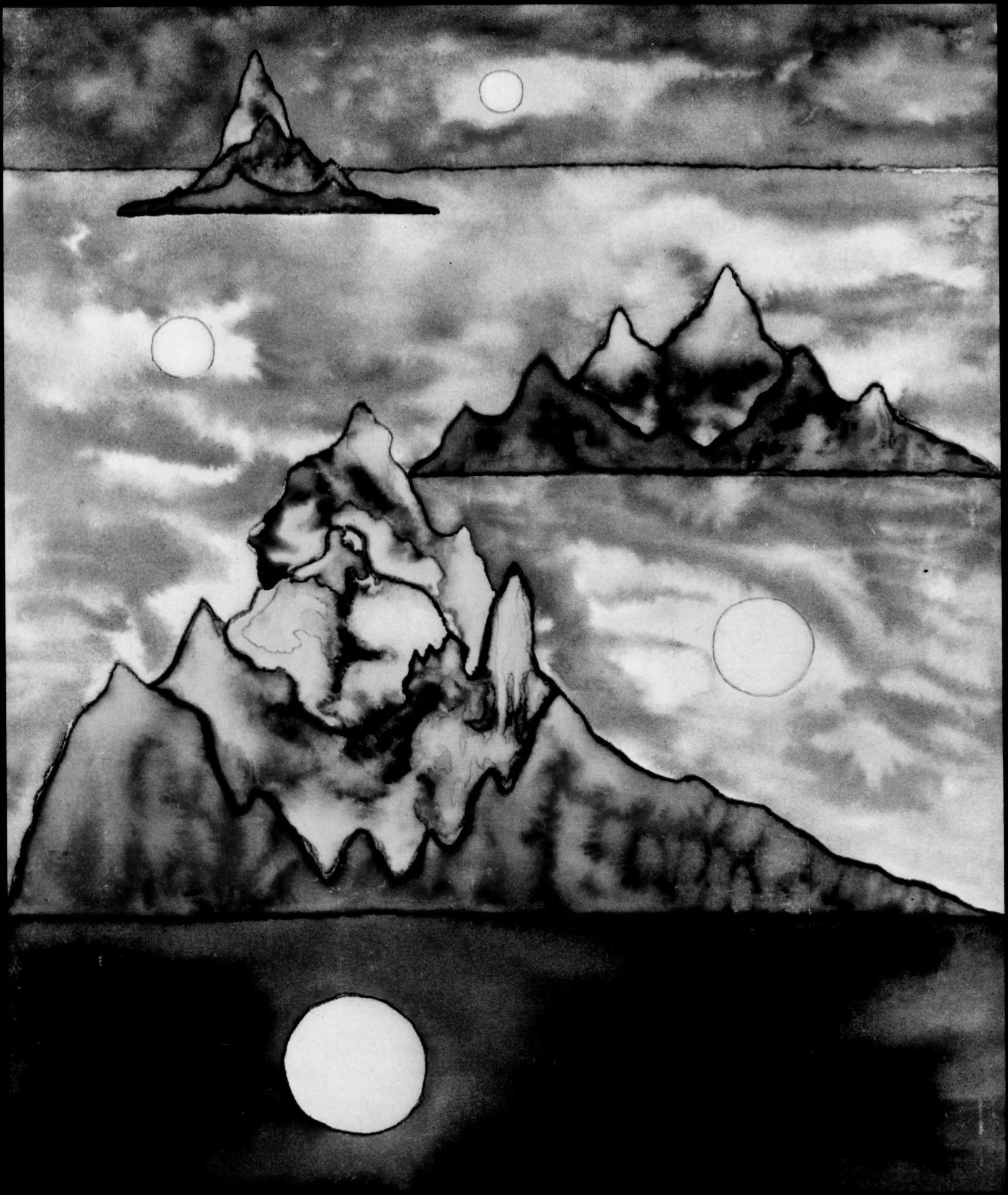
For chemical defense against predators, plants of the Milkweed family learned to synthesize a potent poison, the cardiac glycosides. The Monarch butterfly caterpillar learned to relish this alkaloid. The adult Monarch, full of cardiac glycosides, tasted terrible to his predators, the birds. The nice-tasting Viceroy butterfly learned to mimic the orange-and-black appearance of the Monarch so birds would leave him alone too. The birds, presumably, learned to distinguish more acutely between the real and bogus Monarchs. And the Milkweeds, meanwhile, learned to vary the combinations of alkaloids in individual plants so that caterpillars adapted to one plant could not feed on another. So long as everyone gets some victory and some defeat, the game never stops.

A COEVOLUTIONARY GAME:

(The CoEvolution Quarterly *will pay $20 for each CoEvolutionary game sent to us and published. The players may be life forms, organs, ideas, cultures, inventions, techniques, you name it and connect the circuit.)*



Dear Life

Life is war.
How we hate to admit it.
We mushroom more numerous
We are pitted against each other
In every imaginable way
To keep us reaching.
If we fail life will not fail.
But it has us doing something,
With its harsh ways.
Something important.
It feels like it, doesn't it?
Let's do it.
On your mark.
But wait.
We've got time,
Though time is running out.
Patience is our only hope.
Have you ever tried
To rush a plant
To make its fruit?
Sit down.
We can share this bread.
Dear Life:
The next time
We do something worthwhile
It's yours.
Meanwhile
You know best.
P.S.
It sure is a fancy cosmos.